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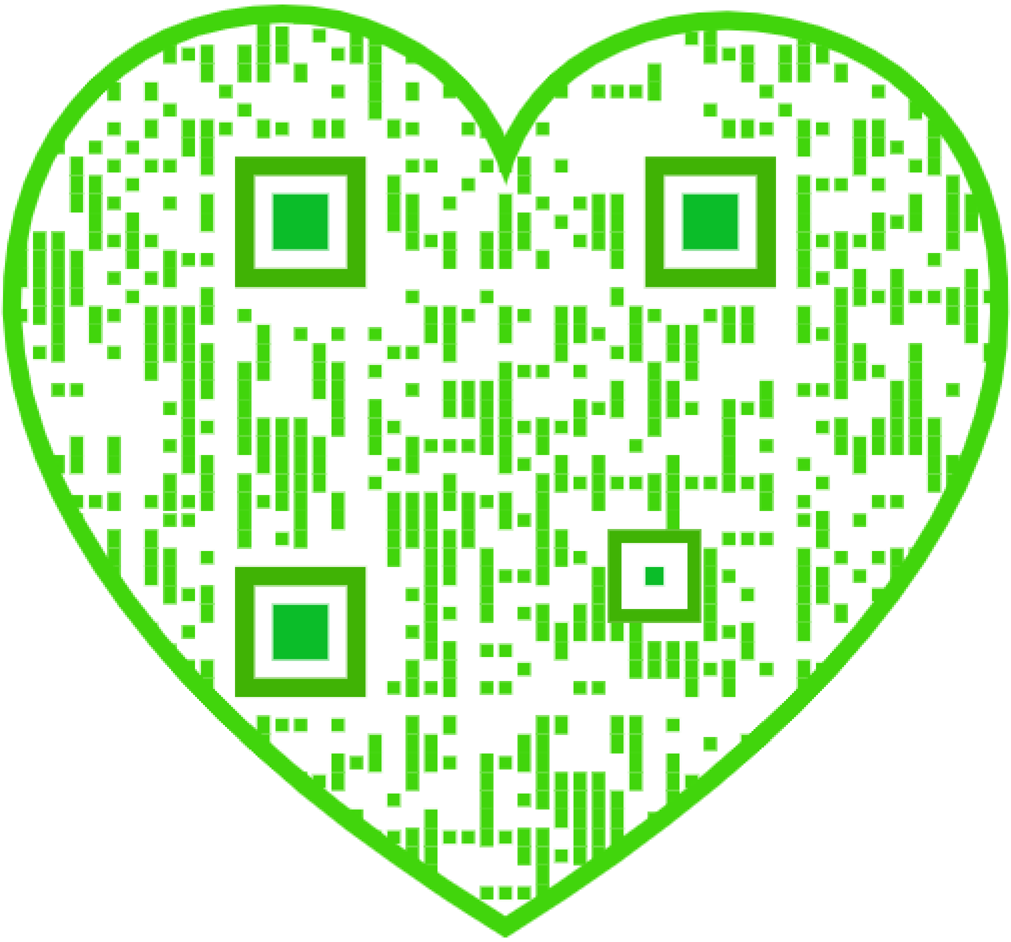
WORLD'S LARGEST POWERBOAT MAGAZINE

THE CENTER-CONSOLE EVOLUTION

CERTIFIED BOAT TESTS

- PURSUIT S 328 SPORT ▶
- TIARA YACHTS 43 LE
- MAREX 440 GOURMET CRUISER
- GRADY-WHITE FREEDOM 345
- SCOUT 261 XSS
- SEA RAY SDX 250 OB
- RANGER RB210
- MAKO 18 PRO SKIFF BACKWATER EDITION

MAY 2025
VOLUME 98 NUMBER 4



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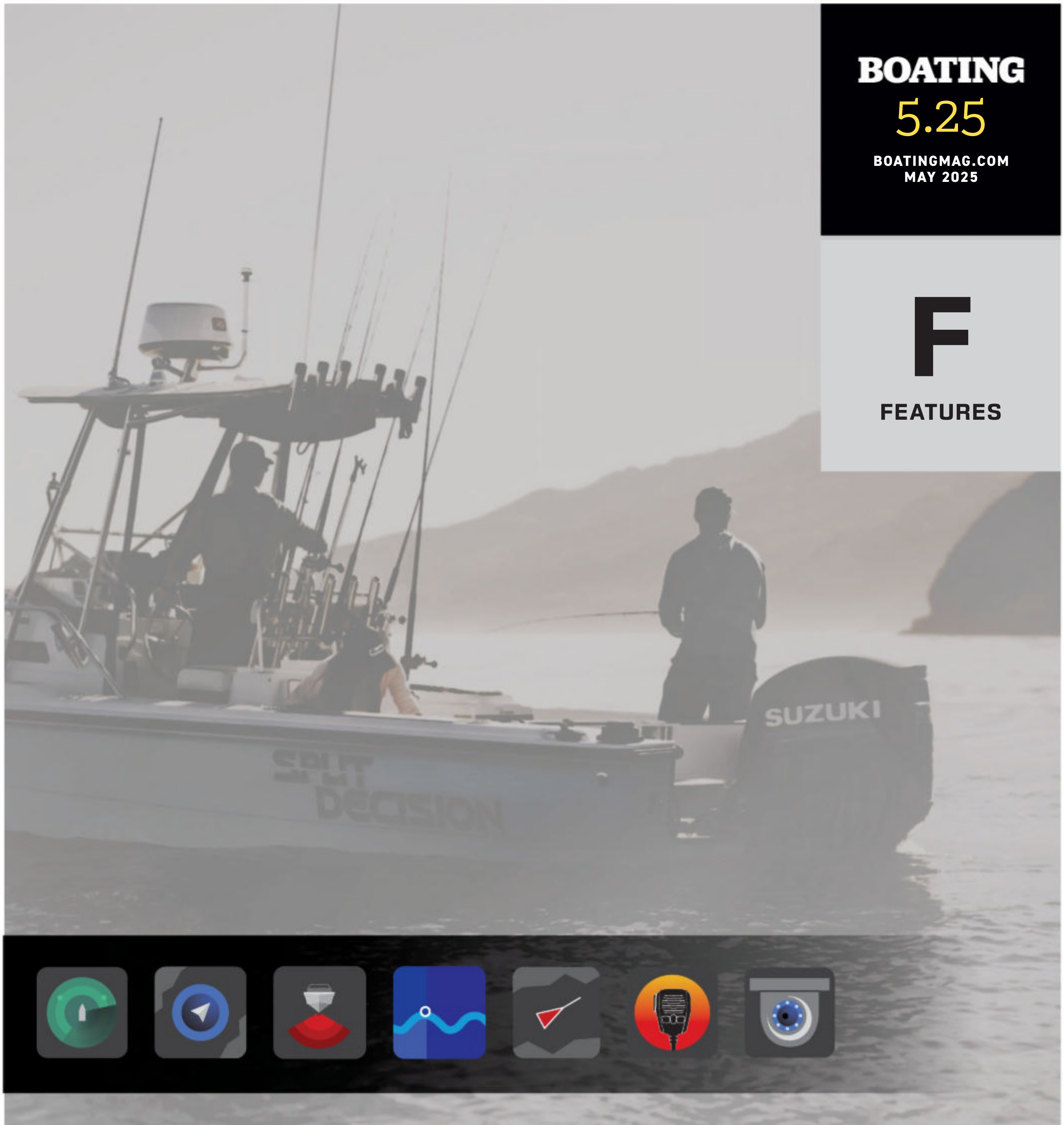
SUZUKI
SPLIT DECISION

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PHOTO: COURTESY GRUNDÉNS

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CERTIFIED BOAT TESTS

ON THE COVER

Pursuit's S 328 Sport has a ton of comforts, angling amenities, and one super-seaworthy hull.
Photo: Courtesy Pursuit Boats

ELECTRONICS MAKE ME SAFER

The correct array of marine electronics can keep you and your crew safe.

BY JIM HENDRICKS

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RESCUE REVIVAL

The US Coast Guard's 47-foot Motor Lifeboats head offshore to save lives.

BY CAPT. VINCENT DANIELLO

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FORMULA

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D
DEPARTMENTS

C
BOATING CERTIFIED TESTS

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440 GOURMET CRUISER
This Norwegian-built cruiser combines style with comfort and functionality.

P.50 **TIARA YACHTS**
43 LE
The 43 LE is a perfect combo of performance and elegance.

P.54 **PURSUIT**
S 328 SPORT
Pursuit revamped the S 328 with a host of improvements.

P.58 **GRADY-WHITE**
FREEDOM 345
Freedom 345 is built tough and ready to fish.

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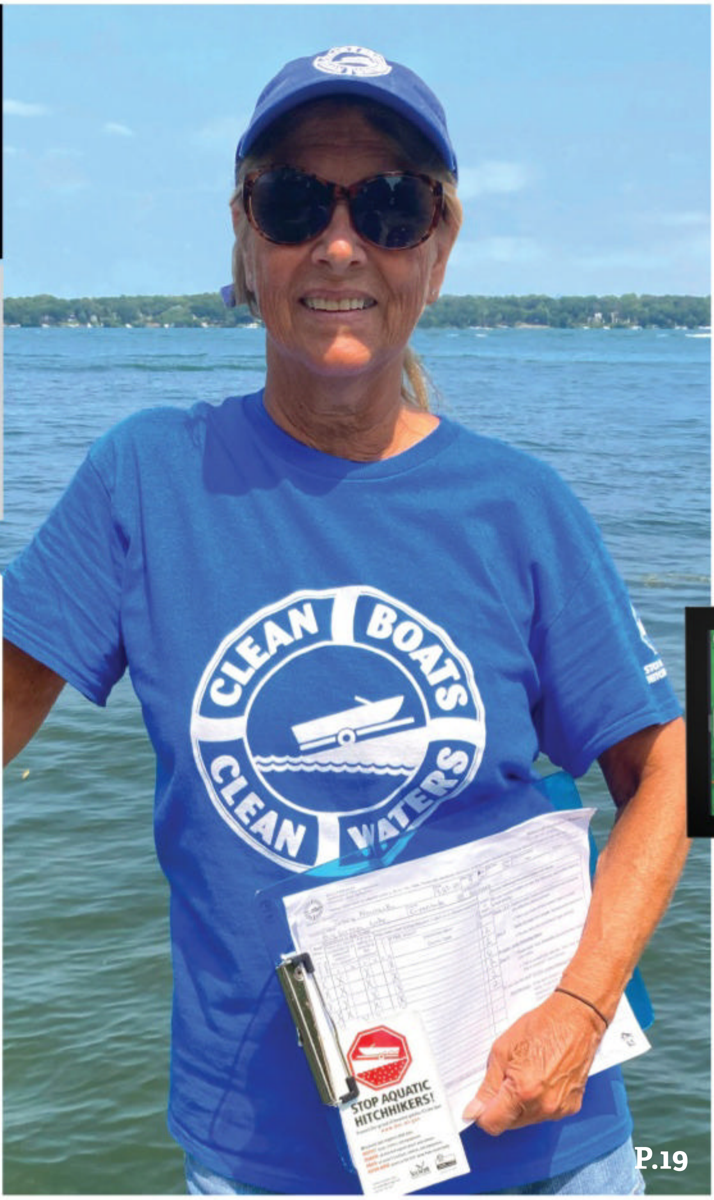
This fishboat comes with big-water capability and shallow-water angling ability.

P.66 **SEA RAY**
SDX 250 OB

P.68 **RANGER**
RB210

P.70 **MAKO**
18 PRO SKIFF BACKWATER EDITION


CLEAN BOATS
CLEAN WATERS
STOP AQUATIC HITCHHIKERS!

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MAKING WAVES P.19

+ On Board With
+ Captain's Test
+ For Comparison's Sake
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+ Flux Marine's electric outboard

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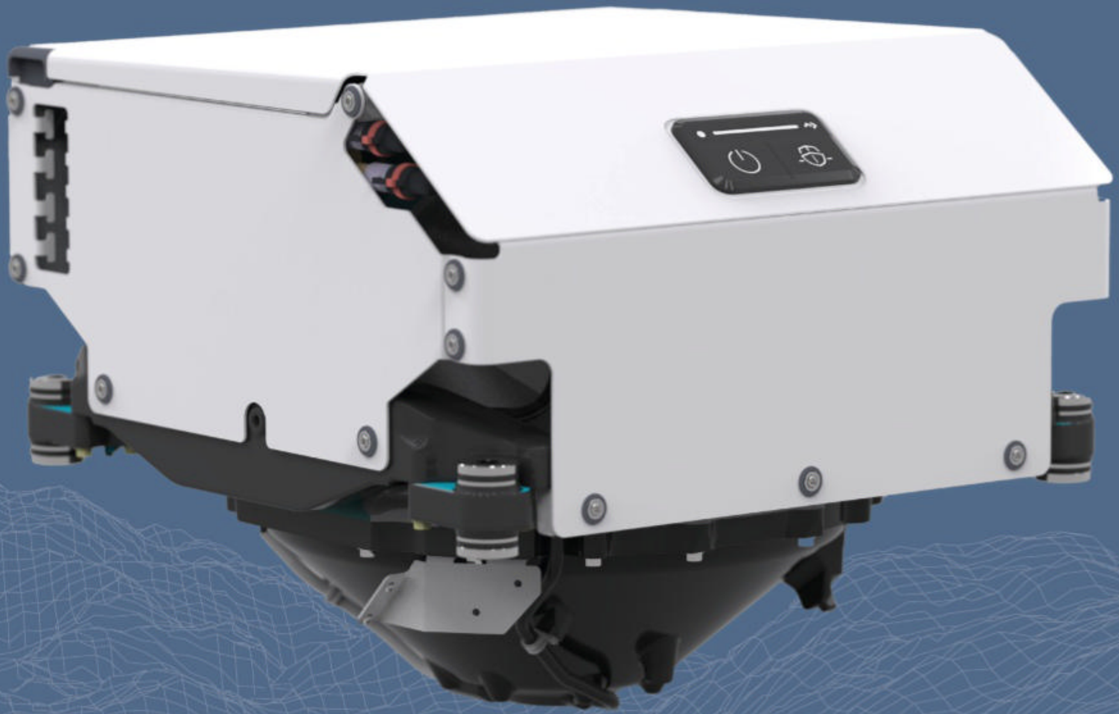
PHOTOS: (CLOCKWISE FROM TOP LEFT) CHARLES PLUEDDEMAN, COURTESY FLUX MARINE, COURTESY SIMRAD, COURTESY PETTIT PAINT, COURTESY KICKER MARINE AUDIO



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2. **Accidents can happen to anyone**
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3. **Boat insurance can cover medical payments**
   Boat insurance offers a range of optional medical payments coverage limits, helping to cover medical expenses if you're in an accident or someone is hurt on your boat, regardless of fault.
4. **Most lenders require boat insurance**
   If you financed your boat, you'll likely need boat insurance since most lenders require boat insurance to protect their investment. Additionally, some marinas or municipalities require proof of insurance for docking.
5. **Progressive offers specialized boat coverages**
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2870 SSX / BREAKING THE MOLD

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By Kevin Falvey

SAFETY THIRD?

Exploring attitudes about boating safety.

I began wearing a life jacket aboard regularly when my children were born. It hit me that if the boat sank or we were ejected, my responsibility included being in the best position to help them. With a life jacket, I wouldn't need to work to stay afloat, thus freeing much of my energy for helping the kids. So, I wear a belt type that I can inflate manually on most days, and don my Mustang suspenders-type manual-automatic life jacket on open water and when alone.

Prior to children, I wore a life jacket only rarely. I'd put one on during rough passages and during times when I was alone aboard and offshore. Maybe.

There's little logic in my change in behavior. If wearing a life jacket so that I can stay afloat "for the kids" is a good thing, well, then why isn't it a good thing for me to stay afloat purely for myself? I can't resolve the contradiction.

Is this feeling widespread? The consensus, gleaned from talking to boaters on the docks, at boats shows and at seminars; via emails from subscribers and website visitors; and from the comments posted on *Boating*'s social-media platforms, suggests that many of you feel similar ambivalence about life jackets and boating safety in general. I'd like to figure out why.

Full disclosure: I currently serve on a task force organized by the Sea Tow Foundation to explore ways in which boating-safety messaging might be mingled with messaging from marine manufacturers without causing boaters to tune out.

And, when it comes to safety, tune out we boaters do. Again, referring to *Boating*'s web and social channels, where we can track engagement, it's easy to see that safety content performs relatively poorly. At first blush, one might suggest there is a problem with the content execution and not with the subject matter. However, work with the aforementioned task force, my previous seats on other boating-safety boards, and discussions with my peers at professional organizations such as Boating Writers International, all indicate that we boaters tend to scroll past boating-safety content at a higher rate than compared with other subject categories.

That is an 11 percent decrease from 2022. Let's see if we can continue the downward trend by each of us reexamining our attitudes and actions regarding boating safety, from life-jacket wear to fueling procedures to properly loading the boat, and more.

In 2023, 564 people in the US died in boating accidents. That is an 11 percent decrease from 2022. Let's see if we can continue the downward trend by each of us reexamining our attitudes and actions regarding boating safety, from life-jacket wear to fueling procedures to properly loading the boat, and more. National Boating Safety Week occurs this month, making May a great time to give these things our attention.

Enjoy the issue.

Kevin Falvey

Kevin Falvey, Editor-in-Chief
editor@boatingmag.com

GEAR UP!
Make sure your safety gear is up to snuff! Use the tips in this month's Quick Study on page 36.

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ON BOARD WITH

SCAN ME
To read the full interview online, scan this tag or go to boatingmag.com/tracy-nowacki.

Tracy Nowacki

Invasive Detective

Launch a boat in Green Lake, Wisconsin, and you might run into Tracy Nowacki, a friendly woman with a clipboard. We met Nowacki on duty at the Horner's Landing ramp, dressed in her bright blue "Clean Boats/Clean Waters" shirt and standing next to a compost pile of weeds she'd removed from boat trailers. Her mission is education and data collection. Funded by a grant from the Wisconsin DNR, the Green Lake Association stations Nowacki and other watercraft inspectors at six launch ramps on the 7,300-acre lake primarily to gather data for the DNR and the University of Wisconsin-Stevens Point College of Natural Resources, which is studying how invasive species such as zebra mussels and spiny water fleas spread. The information is entered into an online DNR database called SWIMS, which stands for Surface Water Integrated Monitoring System. In 2024, the program inspected 144,691 boats across the state. *—Charles Plueddeman*

PHOTO: CHARLES PLUEDDEMAN

How often are you out at the launch ramp?
This is my third season, and I work a four-hour shift three days a week. They usually have some college kids doing this, but I'm semi-retired and like to be outdoors. It gives me something to do while my husband is fishing.

How many boaters do you encounter a day?
Usually 30 to 40 boats launch in my shift, more if there's a tournament on the lake.

What kinds of questions do you ask boaters?
When they pull in to launch, I ask if the boat has been used in another body of water in the past five days. If the answer is yes, I ask where the boat has been. The idea is to help researchers track patterns that could transport invasive species.

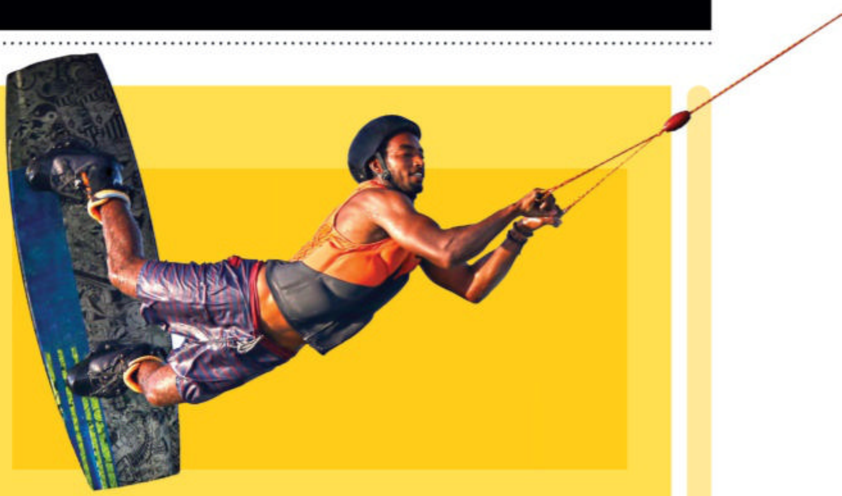
Looks like you are collecting weeds too.
When a boat is retrieved, I help remove any weeds from the trailer, and remind the owner that by law they need to drain their boat and discard any live bait. I try to keep it friendly. I'm not enforcing the law. Many people are still unaware about the spread of invasives, especially younger people. I also point out the wash stations we have at two of our ramps.

Does anyone give you a hard time?
Most everyone is cooperative, and many people actually thank me for being out here to protect the lake. I've had only one a--hole this year.

WATERSPORTS SAFETY

Your kids are hounding you to spend more time on the water with them—they want to water-ski, wakeboard and tube. While you've done this before, it's been awhile—good reason to brush up on some watersports safety tips. How much do you know?

—*John Tiger* (Answers on page 22)



1. When selecting a tube or other similar inflatable toys for watersports, what are some safety aspects to keep in mind?

A. It's safer to consider tubes and toys designed and approved for watersports towing from reputable distributors and sellers.
B. Old tire tubes work best; run down to your local tire store and ask for leftover, worn-out or repaired truck tire tubes.
C. The toys that advertise the ability to lift off the water at higher speeds look like a blast to ride! Look for these at your local marine supply store or online.
D. All of the above
E. None of the above

2. When towing a wakesurfer, wakeboarder, tuber or kneeboarder, what are some good, general commonsense and etiquette guidelines to abide by concerning your surroundings?

A. Don't forget to turn up your boat's stereo to entertain others.
B. Be especially mindful of the large wake your boat creates when towing at slower speeds, and stay far away from boaters who are fishing, docks and docked boats, shorelines, and moored boats.
C. Maintain a minimum distance of 100 feet from other boaters, docks, shore and objects on the water.
D. Alcohol and drugs can really make the day more fun and entertaining when driving or participating.
E. A and D
F. B and C

3. Your friend suggests a day of watersports, but there's no one else available to go. Can just the two of you do some watersports towing together?

A. Although your local waterways may have specific rules, generally it is desired, and in most areas necessary, to have a third person to serve as a spotter.
B. Yes, just be sure to bring beer.
C. You don't need a spotter if you have a rearview mirror and a raised watersports flag in place.
D. All of the above
E. A is always correct, but C can also be correct on some waterways.

4. When towing a watersports rider, what are some things to be especially mindful of as the responsible driver?

A. You'll need to keep your beer cool, so bring plenty of ice and a good cooler.
B. An approved life vest must be worn by the rider.
C. The bright sun can severely impede vision and perception, especially as the day goes by.
D. An observer or spotter, usually over a certain age (depending on local laws), must be present.
E. All of the above
F. B, C and D

5. Even though many don't use hand signals anymore, drivers and riders should be aware of the basics for watersports towing. What are some examples of hand signals between rider and driver?

A. Thumb up: Increase speed.
B. Thumb down: Reduce speed.
C. Crazy dance: Having a lot of fun.
D. "OK" gesture (thumb and forefinger in a circle): I am OK/speed is OK.
E. All of the above
F. A, B and D

6. When purchasing a tow rope, what are some important things to look for?

A. Any piece of rope will work, as long as it's at least 100 feet long.
B. Buy only an approved watersports tow line for the activity you plan (water-skiing, tubing, wakeboarding, etc.).
C. The rope should have knots spaced evenly apart its entire length.
D. A and B
E. All of the above

100,000

Number of life jackets that Sea Tow has distributed to organizations around the country through its Sea Tow Foundation Life Jacket Loaner Program. At 1,300 locations in the United States, boaters can borrow and return a life jacket for a day on the water.

PHOTO: YANAMAVLYUTOVA / ADOBE STOCK; SOURCE FOR STATISTIC: THE SEA TOW FOUNDATION

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POLARIZED SUNGLASS LENSES

No matter what type of boater you are, you should consider a quality pair of polarized sunglasses to be essential safety gear. Not just for how they reduce glare, but for how they protect your eyes from the sun's harmful UV rays as well. Sunglasses-makers now offer myriad lens colors to choose from, but you shouldn't pick based only on style. The different lens colors provide different benefits depending on how and where you boat. We picked just three different lens colors from Bajio Sunglasses selection, paired with the new Darien frames, to illustrate the differences. —*Pete McDonald*

BLUE LENSES

THE CLEAR: These are best for bright, sunny days offshore. They are ideal for offshore boaters who spend a lot of time roaming far outside the inlet, especially for long days in glaring sunlight. Designed, in Bajio's words, to "spot fish in 50-plus feet of water," they're also great for helping to spot other boats, hazards and offshore markers in the distance.

THE GLARE: They block more light than other choices, so they're not ideal at dawn and dusk, or in overcast situations where you still need eye protection.

PRICE: $259 (for glass lenses); bajiosunglasses.com

GREEN LENSES

THE CLEAR: Green is a more all-around lens that works in a variety of boating situations, but it is ideally suited for the coastal boater running in "greener" inshore waters. It has an amber base to help make out changing water depths and partially submerged hazards that you can encounter. They work well in various light conditions and can offer more contrast in low-light situations.

THE GLARE: They still reduce glare and protect against eyestrain, but they don't block as much light as the blue lenses.

PRICE: $259 (for glass lenses); bajiosunglasses.com

COPPER LENSES

THE CLEAR: Copper is often the choice of long-haulers for road driving because they offer a lot of high-contrast polarization. These work the best in low-light situations at dusk and dawn, and are preferred by many freshwater anglers in small river and lake situations. So they'd be well-suited for freshwater boaters. Anglers like them because they help in spotting fish in less-than-clear water. They're also good on cloudy days.

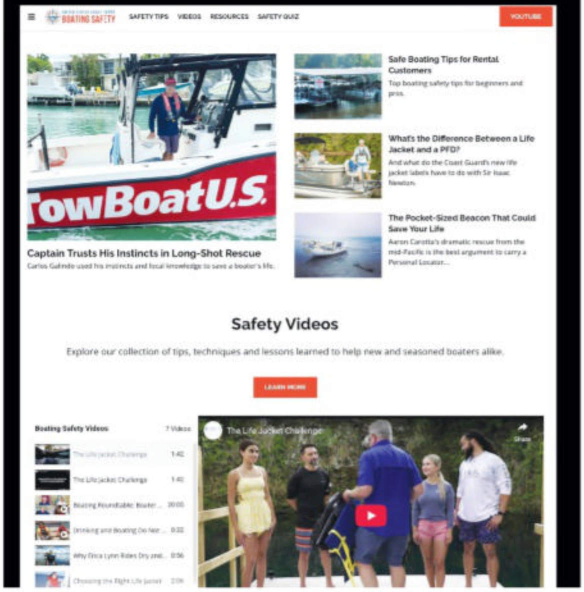
THE GLARE: Copper doesn't create the same "HD pop" as some of the other lens colors.

PRICE: $259 (for glass lenses); bajiosunglasses.com

ONLINE THIS MONTH

SAFETY TIPS

May is boating-safety month, and in order to help promote awareness for boaters, we've got an entire landing page on our website dedicated to safety tips and news, in conjunction with the US Coast Guard. Visit boatingsafetymag.com.



Captain Trusts His Instincts in Long-Shot Rescue

Carlos Galindo used his instincts and local knowledge to save a boater's life.

Safe Boating Tips for Rental Customers

Top boating safety tips for beginners and pros.

What's the Difference Between a Life Jacket and a PFD?

And what do the Coast Guard's new life jacket labels have to do with Sir Isaac Newton.

The Pocket-Sized Beacon That Could Save Your Life

Aaron Carotta's dramatic rescue from the mid-Pacific is the best argument to carry a Personal Locator...

Safety Videos

Explore our collection of tips, techniques and lessons learned to help new and seasoned boaters alike.

Boating Safety Videos 7 Videos

The Life Jacket Challenge

CAPTAIN'S TEST ANSWERS

(Answers from page 20)

1. A is the only correct answer. Tubes not designed for watersports towing can be dangerous and hurt the rider. The "kite-type" tubes that fly high above the water can cause extreme injury and even death!

2. F. B and C are the only correct answers.

3. E. Even if your local rules don't require an observer/spotter, it is always better to have one aboard than not, although some lakes and waterways allow watersports towing with a rearview mirror, and sometimes a raised "watersports towing" flag.

4. F. B, C and D are all correct.

5. F. A, B and D are all recognized signals for driver, observer, and rider to know and use.

6. B is the only correct answer.

CAPTAIN'S TESTS ONLINE

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PHOTOS: COURTESY BAJIO SUNGLASSES (4)

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By Kevin Falvey

AQUILA
42 COUPE

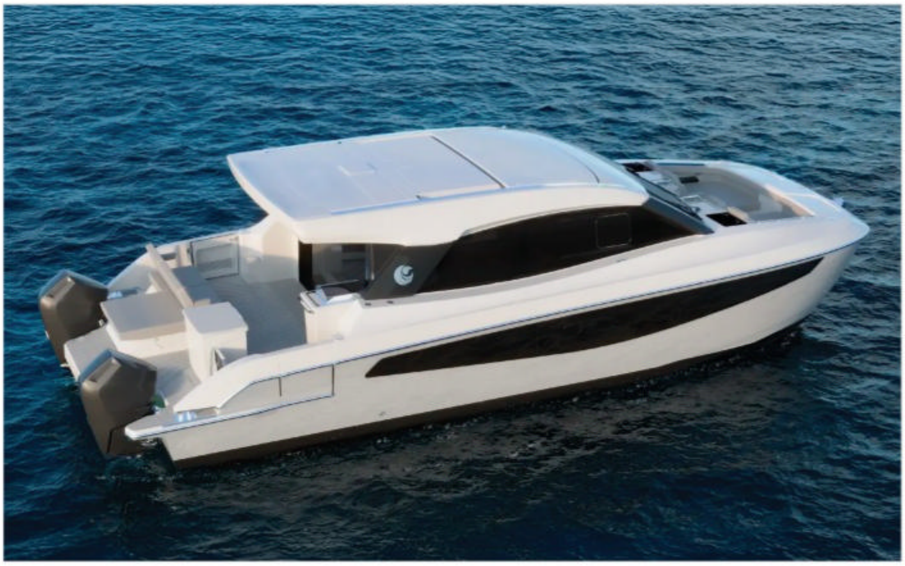
PHOTO: COURTESY AQUILA CATAMARANS

The Aquila 42 Coupe is a new cruising catamaran that evinces luxury and functionality, and also boasts the efficiency and performance granted by its Aquila Hydro Glide Foil System. It's the world's first cruising catamaran equipped with a standard hydrofoil.

In an interview with the 42 Coupe's designer, Jernej Jakopin, of J & J Design Studio, Jakopin explained how the foil essentially makes the boat lighter, and thus delivers better speed and economy for a given horsepower. "The foil provides 3 tons of lift," Jakopin said.

Jakopin also explained that the foil makes the boat deliver a smoother ride in rough water.

We toured the 42 Coupe's interior and found that Aquila has made the most of the boat's wide beam. There is a private cabin in each hull, each with its own head and shower. This is a great privacy advantage that cats have over monohulls. Topside, we found luxury and comfort in the expansive salon, cockpit and bow lounge.

Standard power is twin 400 hp V-10 Mercury Verado outboards. Twin 400 hp Volvo Penta diesel Aquamatic sterndrives are optional. With its 410-gallon fuel tank, this foil-equipped cat sports long legs either way. Price? MSRP ex-factory starting at $805,000.

▪ **LOA:** 42'10" ▪ **BEAM:** 15'11" ▪ **DISPLACEMENT (APPROX.):** 18,740 lb. ▪ **FUEL CAPACITY:** 410 gal.

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By Kevin Falvey

BENNINGTON
24 M LINE

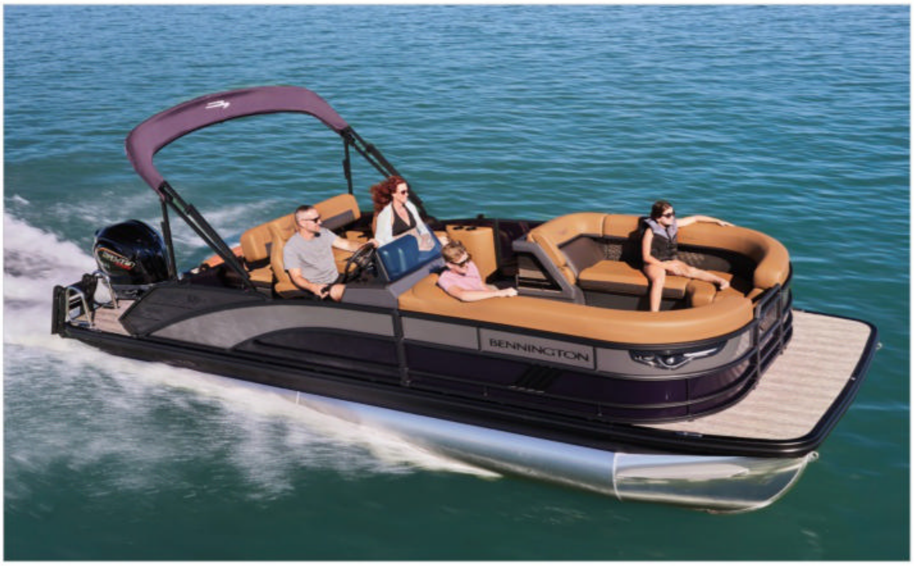

PHOTO: COURTESY BENNINGTON MARINE

The new M Line of Bennington pontoon boats (24 Swingback is pictured) offers a customizable design, unique features and a sleek silhouette. Models range from 22 to 26 feet in length, and are rated for up to 500 hp and for between 10 and 15 people. M Line pontoons also come in seven foundational layouts: Quad Bench, Swingback, L-Bench, Center Swingback, Sport Lounge, Open Fastback and Fish N Cruise.

The Swingback layout's aft lounge backrest swings so that people can sit facing forward or aft. Excellent boarding access also marks this layout. Check out its extended aft deck with LilliPad ladder.

Other standards include two bow lounges with armrests, an Ergo Lounge bench seat amidships, and Veneto Premium soft-touch vinyl upholstery. At the helm, find a standard 7-inch Vivid UX main display with Vessel Control touch pad. All aboard can enjoy the standard Premium Rockford Fosgate audio piped through six stereo speakers.

Options include a 12-inch Vivid screen, a 7-inch touchscreen, an elevated helm, and a carbon-fiber Aero arch.

Pricing starts at $84,385 MSRP with a 150 hp Yamaha outboard.

· **LOA:** 26'3" · **BEAM:** 8'6" · **DISPLACEMENT (APPROX.):** 2,260 lb. · **FUEL CAPACITY:** 23.9 gal.

BENNINGTON MARINE
Elkhart, Indiana; benningtonmarine.com

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LoPRO 12.8V 100Ah
NEWPORT

NEWPORT LOPRO LITHIUM BATTERIES

LoPro lithium batteries from Newport are engineered for small-boat and kayak anglers seeking a compact, easy-to-transport, yet high-performance DC power source. The LiFePO4 design features an IP67 waterproof rating, Bluetooth connectivity, and tool-free terminal lugs. Its 14.5-square-inch footprint is just 4.13 inches tall. It's available in 12-volt (100Ah), 24-volt (50Ah) and 36-volt (50Ah) models. The 12- and 24-volt versions weigh 22.5 and 22.6 pounds, respectively, and each floats. Starts at $599; tiny boatnation.com

HOBIE HULL FLOAT SUNGLASSES

The Hull Float sunglasses from Hobie Eyewear feature ultralight frames made from upcycled Hobie kayak plastic. Plus, the polarized lenses not only are crystal-clear and cut glare, they are made from bio-based nylon, so they are planet-friendly too. And yes—just like a kayak—these sunglasses float, so you can retrieve them if they go overboard. The lenses provide 100 percent UV protection and feature a HydroClean 360-degree coating that repels water and makes the lenses easier to clean. Hull Float sunglasses are available in a variety of lens shades, and come with an upcycled plastic hard case and microfiber pouch. $119.99; hobieeyewear.com

KICKER
KICKER

KICKER REAL MARINE SPEAKERS

Kicker Marine Audio's premium speakers deliver exceptional clarity, accuracy and durability. The MSS and MSC speakers, along with the MW woofers, set new standards for premium marine systems. The MSS component systems and MSC coaxial speakers feature 28 mm Tetoron textile-dome tweeters for the high-end sound of a soft dome tweeter, while also exhibiting hydrophobic and UV-stable properties. They are available in 6.5-inch and 8-inch sizes. The MW woofer series features four models in 10- and 12-inch sizes in both FreeAir and enclosed styles. All include RGBW lighting. Starting at $499.99; kicker.com

PHOTOS: (CLOCKWISE FROM TOP LEFT) COURTESY NEWPORT VESSELS, COURTESY KICKER MARINE AUDIO, COURTESY HOBIE EYEWEAR

4 AMP
Battery Tender
1200 AMP

BATTERY TENDER CHARGE N START

The new Charge N Start series from Battery Tender combines the convenience of a jump starter with a compact AC battery charger. The series includes three models with this 2-in-1 feature. The 4120 model is best suited for boats, boasting a 4-amp charging capacity and 1,200 amps of 12-volt DC starting power. It is compatible with flooded-cell or sealed lead-acid, AGM, Gel and LiFePO4 battery technologies. It includes indicators for the status of the internal battery, external battery, and charge output. The model 4120 retails for $169.95; batterytender.com

TOIT SPLIT-RING PLIERS

Frustrated by years of installing and removing split rings on lures and assist hooks? Toit's split-ring pliers are the solution. These patent-pending pliers feature a rounded tooth that does not flip-flop about when opening a split ring. The tapered wedge also allows for fine adjustments in the size of the split-ring gape you need. Toit split-ring pliers come in small, medium and large to match your class of fishing tackle, and they are made from forged stainless steel for years of corrosion resistance. They are also spring-loaded for ease of use. Starting at $39.99; meltontackle.com

SURESHADE PONTOON POWER BIMINI

The Power Pontoon Bimini from SureShade is simple to install and easy to use. Designed with premium, marine-grade UV-resistant canvas, the 10-foot shade extension offers 30 percent more coverage than standard Bimini tops. The telescoping frame, available in both black and anodized aluminum, fits pontoons with beams ranging from 92 to 102 inches, and it can handle speeds up to 25 mph. The system is powered by two heavy-duty 12-volt DC electric actuators, with the wire harness cleverly routed through the rear frame to automatically power the second actuator. Operate the Bimini with a Bluetooth connection and the SureShade Connect app. Starting at $1,659.99; westmarine.com

STREAMLIGHT WEDGE EDC FLASHLIGHTS

Ideal for use aboard boats, the original Wedge EDC rechargeable LED flashlights from Streamlight are available for the first time in orange and lime green. Plus, the Wedge XT now comes in silver. The 5.46-inch-long Wedge models provide 300 continuous lumens and a 1,000-lumen in Temporarily Heightened Regulated Output mode for a 35-second burst. Its intuitive rotating thumb switch allows for easy one-handed operation, and the light features a rugged anodized-aluminum body with a textured grip. The 4.25-inch-long Wedge XT delivers 500 continuous lumens. All are IPX7 waterproof rated. Starting at $159.65; streamlight.com

YACHT BEAM LED SEARCHLIGHT

The Yacht Beam Performance Series Searchlight boasts industry-leading illumination and precision control. The LED array delivers a 750,000-candle-power spotlight with a range in excess of 1,000 meters and an 80-meter beam diameter. Its floodlight pumps out 250,000 candle power with a range of 200 meters and a 75-meter beam diameter. The joystick control has illuminated color-coded buttons and symbols that make operation easy. You can select multiple rotation speeds to best match different boating situations. An Instant-On Centered Forward Beam automatically centers straight ahead when turned on. The joystick lets you change elevation angle up to 15 degrees and down to minus 27 degrees at 3 degrees per second. Starting at $4,995; yachtbeam.com

PHOTOS: (CLOCKWISE FROM TOP LEFT) COURTESY BATTERY TENDER, COURTESY SHURESHADE, COURTESY YACHT BEAM, COURTESY STREAMLIGHT, COURTESY MELTON INTERNATIONAL TACKLE

By Jim Hendricks

THE VALUE OF A CO-CAPTAIN

Having a second set of eyes and experienced hands at the helm improves safety.

Military fighter pilots can suffer from a condition called information overload, which can be brought about by overwhelming amounts of technology in the cockpit that distract from the primary mission of flying the aircraft.

PHOTO: COURTESY SIRIUSXM

This phenomenon has led to placing a second aviator known as a RIO—radar intercept officer—on board to relieve the pilot from monitoring, managing, and operating technologies such as radar, weapons systems, and navigation. If you watched the movie *Top Gun* (the first and best one, I think), you will recall that Goose, seated behind Maverick in the F-14 Tomcat, served as the RIO.

Information overload also can occur for helmsmen piloting today's boats. As marine electronics provide increasing amounts of information, there's a tendency to become preoccupied with electronic displays rather than keeping eyes on the surrounding waters and driving the boat.

This is particularly true in challenging conditions such as in the dark of night or dense fog, when technologies such as radar, AIS, electronic chart plotting and night-vision cameras are relied on heavily for safe navigation.

These are times when I want next to me at the helm the boating equivalent of a RIO—a co-captain whose responsibility is to manage and monitor critical navigational electronics while I man the wheel and maintain a lookout.

In order to trust a crewmember in this role, they need to be someone who possesses the skillset to operate and interpret marine electronics—and remain focused. For me, this includes a handful of fishing buddies, most of whom have honed these skills aboard their own boats.

On one occasion, I had the pleasure of working with a co-captain who had manned far more sophisticated electronics aboard a National Oceanic and Atmospheric Administration research vessel in the Pacific Northwest and Alaska. I really trusted him, and I learned a thing or two as we encountered heavy fog on a 35-mile spring return trip from Santa Catalina Island.

Vocal communication between you and your co-captain plays a vital role. The co-captain needs to speak up, for example, at the first indication of a radar return. Like in a scene from the movie *Greyhound*, they should provide a relative bearing and distance (such as 12 o'clock, 1 mile) and regular updates. They might also offer suggested course corrections as a target grows closer. Hand signals indicating direction can complement verbal communications.

A co-captain can help boost safety even when conditions are nice. I remember another return trip from Catalina in flat-calm seas with excellent visibility and no other boat in sight. I was focusing my eyes on the waters ahead, cruising at about 24 knots, and feeling relaxed when my co-captain grabbed my shoulder and shouted, "Jim, watch out!" Another boat was closing fast from about 150 feet off our starboard quarter with apparent intentions to cross our bow at a dangerously close distance.

I stabbed the throttle to quickly accelerate and force the reckless boater astern of us. I should note that this occurred during COVID, at a time when a lot of new boaters were on the water with little or no knowledge of what constitutes prudent seamanship, including giving another boat a wide berth on an otherwise vacant ocean. Thank goodness for my co-captain, who kept his eyes up, his head on a swivel, and alerted me to the threat.

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Q&A

By
Michael "Mick"
Hannock

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4-IN-1
PERFORMANCE

NO SPRAY Some sunscreens can stain vinyl boat upholstery. Overspray from spray sunscreens can cause the worst of it. Use lotion, not spray.

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SPORT
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4-IN-1
PERFORMANCE
Stops up to 98% UV Rays
+RESISTS
Sweat + Heat + Water
Free of Oxybenzone, Octinoxate,
PABA, Phthalates & Dyes

ORANGE COAMING PADS

Q: Dear Doc, I noticed that we were getting orange discoloration on our boat's coaming pads, especially in the bow where our kids sit. The kids wore orange life jackets, so I assumed the dye from these was the cause of the orange stain, but when we switched to blue and yellow life jackets, we still got the orange discoloration. This orange color cannot be cleaned off, though it fades and eventually goes away after a few trips. What is going on?

Dale Summerfield
Acton, Massachusetts

A: Sunscreen. You coat your kids in sunscreen, right? This creates the orange tint you describe. (Bug sprays can do this too.) Formulations containing the chemical PABA seem to be the worst offenders. Try switching to a PABA-free brand. You might also wait a few minutes after applying the sunscreen before sitting down—to give the lotion time to dry. Maybe coat the kids before boarding. Also do not use a spray: A lotion formula lets you better control where the stuff goes.

PHOTOS: COURTESY COPPERTONE

RECAULK SEAMS AND FITTINGS Over time and use, caulk breaks down. Exposure to sunlight and cleaners plays a part, as does the flexing and moving of boat parts. Just think of the stress on a screw-down hatch—what boatbuilders call a "soft patch," such as that often found covering fuel tanks—when two burly fishermen are standing on top of it as the boat moves through choppy water. How about the strain on ladders, rails and handles? In any event, it makes sense to annually inspect all things caulked aboard your boat. In addition to hatches, check deck plates, fuel and water fills, and more. Generally, at five or seven years, some seams and beads will need to be renewed. —*Kevin Falvey*

EPIRB

Q: I am considering an EPIRB for my Four Winns express cruiser. The boat has a radar arch, and that is where I will mount it so that it can best float free and activate in an emergency. I want to mount it on the inside of the arch, where it will be more out of the way. However, that location might see the EPIRB trapped by the Bimini top if it is deployed when the EPIRB needs to float free. I can mount it to the outside of the arch, but it might get bumped by people going forward on the side deck. What would you do?

Donald Bergeron
Kingston, Ontario, Canada

A: I'd mount it on the outboard side of the arch and make sure that everyone going forward is aware of its presence. Mounted in the float-free bracket, it measures about 18 inches tall by 5 inches square, according to the published specs. Scooching past it is not a problem in most installations I've seen, if it can be mounted above knee height on the arch.

A beacon is a great safety item, and I am glad to see that you are giving its installation proper forethought.

FOR THE BIRDS

Q: Dear Doc, I am tired of the seabirds making a mess on my boat while it is on the lift. What is the best prevention for this avian annoyance?

Sam Hughes
Charleston, South Carolina

A: Boat scarecrows, in the form of hard plastic or inflatable owls and snakes, are effective, provided you relocate them at least once per week. Draping the boat in construction netting is very effective because birds don't like landing on it. You can find this in a drab olive color, as well as the safety-orange color, which might appeal more to your aesthetic sense.

I see boaters using these kites that fly on a short tether, and they seem to work pretty well. You must be docked in an area of constant breeze for these to work. They don't need much wind to soar. Many are mounted on a flexible pole that clamps to a railing or other boat fixture in order to stay airborne.

POWDERED CLEANER FOR BOATS

Q: Dear Boat Doctor, there used to be a company called Boat Life that made a powdered boat cleaner. It was economical to use by just mixing some of the powder with a bucket of water. Also, I would simply sprinkle some on my fishing boat's cockpit after flushing away the heavy dirt and debris. I would come back in a few days or a week to a clean cockpit with no scrubbing. Do you know of a similar cleaner available today?

Dave Neff
Atlantic City, New Jersey

A: I do remember Boat Life, and I do remember that powdered boat soap. It was probably a mix of soap flakes and bleach crystals. I can say that I add granulated citric acid to my boat wash on occasion, if the decks are especially grimy. I take care not to splash any of this mixture on upholstery or canvas, however, because stronger cleaners can have a bad effect on some fabrics.

WE TEST STUFF

PROPSPEED FOULFREE

Typically, I have used the same aerosol antifouling coating that I use to protect my outboard's mounting bracket and my trim tabs to protect my transducers. This has worked fine.

Last year, I applied Foulfree by Propspeed to a new transducer I was installing aboard *Breakaway*. Foulfree is a foul-release, as opposed to antifouling coating. It contains no toxic biocides. Instead, it creates a surface so slippery that critters and plants get washed off as the boat is underway. This same technology has been successfully applied with Propspeed's Foulfree coating for inboard propellers. In any event, a biocide-free coating sounds like a good idea to me, if it would provide solid protection.

For comparison, I applied Foulfree to one transducer and a popular aerosol antifoulant to another transducer. The boat was then used and stored in the water for six months in the Northeast United States. At fall haulout, both transducers were equally clean.

The difference? Foulfree uses no toxic biocides, so it's safer for the environment and for those who are applying the fouling protection.

Additionally, Propspeed Foulfree is certified by Airmar, maker of transducers for major brands of depth and fish finders, to not impair transducer performance.

Propspeed Foulfree comes in a kit that includes everything you need to cover about 1 square foot of transducer surface. That translates to coverage for between two and maybe four transducers. $39.99; freeportmarine.com —*KF*

PROPSPEED
FOULFREE
AIRMAR
FOULFREE
XOCLEAN WIPE

PHOTOS: (FROM TOP) COURTESY ACR ELECTRONICS; COURTESY AIRMAR TECHNOLOGY CORPORATION

GRASSY WATERLINE

PETTIT
TRINIDAD XSR
SLIME RESISTANT HARD ANTIFOULING PAINT
DURABLE FINISH
FAST DRY TECHNOLOGY
TRIPLE BIOCIDE FORMULA

Q: Dear Doc, I keep my boat in the water. I have been doing this for many years and have found the right paint for my boat's bottom. However, the waterline gets grass buildup, which I scrub off with a boat brush. Do you have a solution?

Harper McCoy
Poti, Georgia

A: Your problem is common. The waterline doesn't receive the same "washing and scrubbing" action that the bottom of the hull undergoes as it moves through the water. Antifouling coatings count on this to a greater or lesser degree—depending on the paint—so, fouling can adhere.

One solution is to apply more coats to the waterline to resist scrubbing. Every time you scrub off the grass, you are scrubbing off paint (protection).

Some boaters take it a step further and use a different type of paint on the waterline than on the bottom. An ablative coating can serve better on the waterline, as will a paint with an active slime-fighting ingredient such as Irgarol or ZPT. Traditional cuprous oxide-only paint doesn't have any slime-fighting characteristics, but cuprous oxide in an ablative can help simply due to the polishing effect. Add in a slime fighter, combined with a hard coating that resists scrubbing (and abrasion from fenders, etc.), and you'll understand why a triple-biocide hard paint, such as the Pettit Trinidad XSR (pictured), is used for the waterline by many boaters.

JIGGLE THE HANDLE?

Q: Dear Boat Doctor, we retrofitted our cruiser with a VacuFlush head some years back, and it has worked great and uses much less water than our old standard head. Now, however, it is constantly cycling. What can be wrong?

Ed Feeley
New York, New York

A: First thing I would check would be the duckbill valve. These are one-way rubber valves that prevent backflow. When they wear, they don't check all water flow and thus, the vacuum pump might run constantly.

Inspection and replacement of the valves are in the realm of a DIY boater. Plan for at least one hour, unless you have done it before, and depending on access in your boat. Specifics will vary by make and model, so check your manual. You will be removing the pump from the inlet side of the accumulator tank. There will be valves on both sides of this pump.

Even though you are working the inlet side, wear PPE when working on head systems. Also, be careful not to overwrench on plastic parts.

BOLTS OR SCREWS?

Q: Can I screw down gunwale rod holders? Getting to the underside of the gunwale appears impossible!

Pete Ewell
Via Email

A: Screwing down a rod holder is asking for trouble sooner or later. Remember: Mops, brushes, nets and gaffs go in them too, and people occasionally use those things to hold on.

First, can you install deck plates below the rod holders so as to reach in and up and secure the washers, backing plates, and nuts? Or maybe you could use two more stereo speakers? Is there a recessed rod rack under the gunwale that can be removed to grant access?

If none of the above solutions are available to you, use toggle bolts. Marine-grade toggle nuts are available at marine-supply stores. The rectangular "nut" pivots on the strap in order to fit through the bolt hole. Then you hold the strap while inserting and tightening the bolt. The flanges increase the surface area, and these are often used to install pedestal seats, so they are fine for most rod-holder installations. (Bent-butt swiveling rod holders would be a notable exception.)

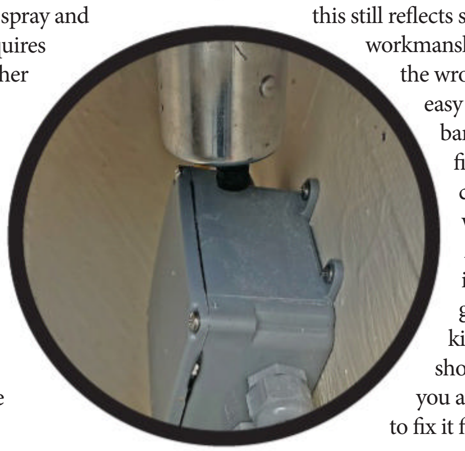
ASK THE DOCTOR

Send questions to Mick with your name and boating location to boatdr@boatingmag.com.

OPEN DRAIN ON A ROD HOLDER

NAUTICAL
NO-NO

One of the great things about today's gunwale rod holders are those hose barbs at the bottom of the rod tube to redirect collected spray and washdown water. But this requires connecting vinyl tubing or other small hose to the barb, and running it to a fitting that drains onto the deck or overboard. In this case, we noticed that this step was neglected aboard the boat we were testing. As a result of the mistake, the rod holder drains directly on top of an electrical junction box—the worst possible place to pour water, especially salt water. One might argue that the junction box is sealed, but this still reflects sloppy workmanship. It rubs me the wrong way because it's an easy fix. Connect tubing to the barb and route it to a small fitting where water will not cascade on top of electrical wires and connections. Always poke around inside lockers and under gunwales to look for these kinds of mistakes when shopping for a boat, and if you agree to buy, ask the seller to fix it first. —*Jim Hendricks*



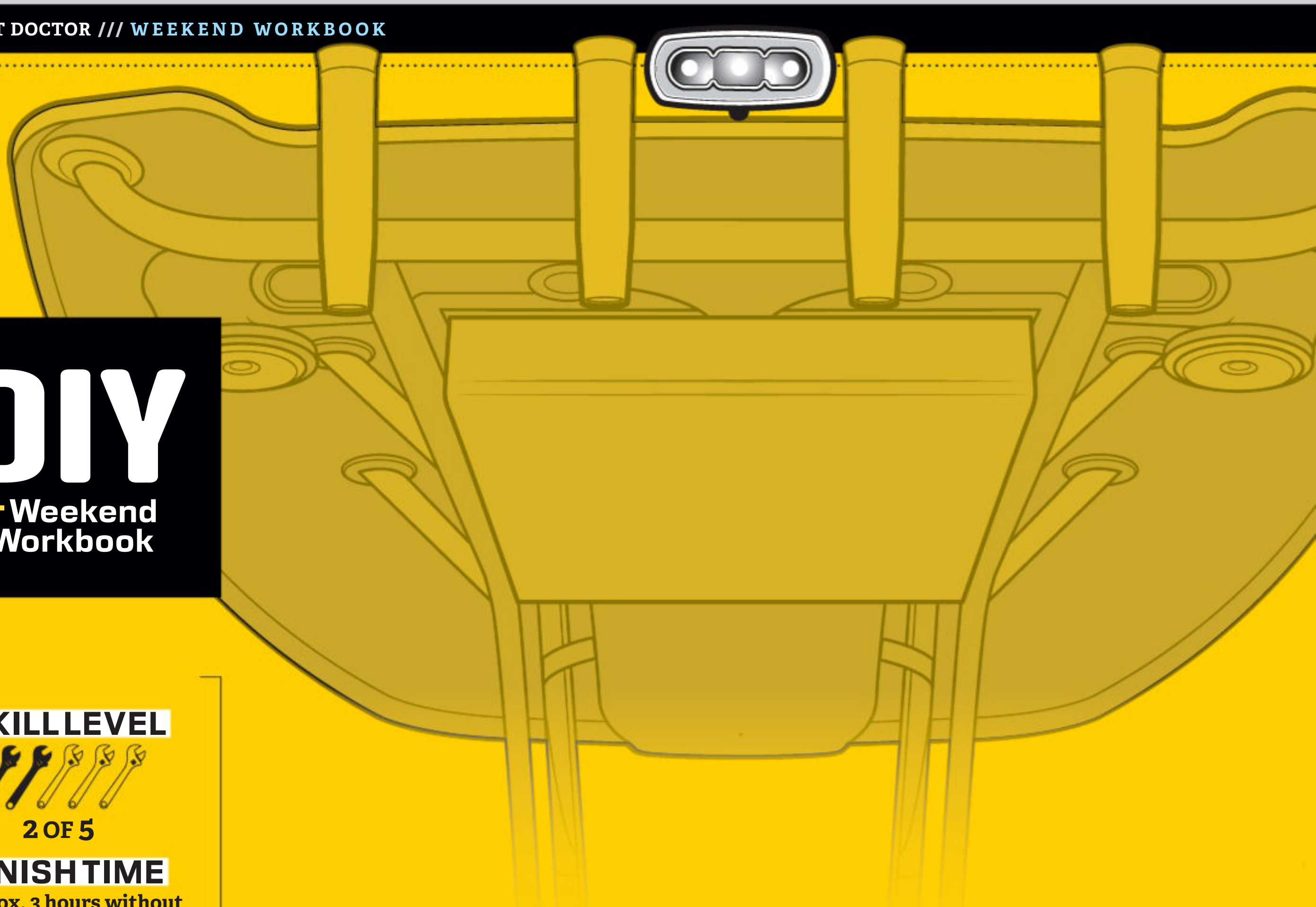
PHOTOS: (FROM TOP) COURTESY PETTIT PAINT, JIM HENDRICKS

YEAH, FEELS LIKE THAT.

SEAKEEPER RIDE

Seakeeper Ride is a complete underway stabilization system that replaces traditional trim tabs by automatically making 100 adjustments every second to eliminate up to 70% of pitch and roll and the pounding that comes with them.

Scan to find complete underway stabilization for boats up to 42 ft.



DIY

+Weekend Workbook

SKILL LEVEL

2 OF 5

FINISH TIME

Approx. 3 hours without running new wires

TOOLS AND SUPPLIES

- Lumishore Eclipse 4-inch LED bracket-mounted floodlight ($198.99; westmarine.com)
- Crimp-on butt connectors with heat-shrink collars
- Diagonal cutter, wire strippers, crimping tool
- Power drill and metric bits
- Countersink bit
- Box/open-end wrench set
- Torque wrench
- Rubber grommets
- Cable gland
- Phillips screwdriver
- Marine sealant
- Heat gun
- Shop rags (to wipe away excess sealant)

INSTALLING LED SPREADER LIGHTS

LED spreaders illuminate the deck for greater safety at night, while also conserving onboard battery power.

The first spreaders—aka marine floodlights—that I installed on my boat 30 years ago were ITT Jabsco Ray-Line 50-watt 12-volt Halogens. Like most spreaders, they mounted overhead at the back and front of the hardtop and shone down on the deck. They provided plenty of light, but they were relatively large, would grow hot and drew 4 amps, so you didn't want to leave them on too long with the engine off.

Since then, marine lighting has undergone a revolution for the better, thanks to light emitting diode technology, which allows for more-compact fixtures, provides more lumens, creates less heat, and consumes less power than comparable incandescent lights. On top of that, LEDs offer a substantially longer service life than do incandescent bulbs.

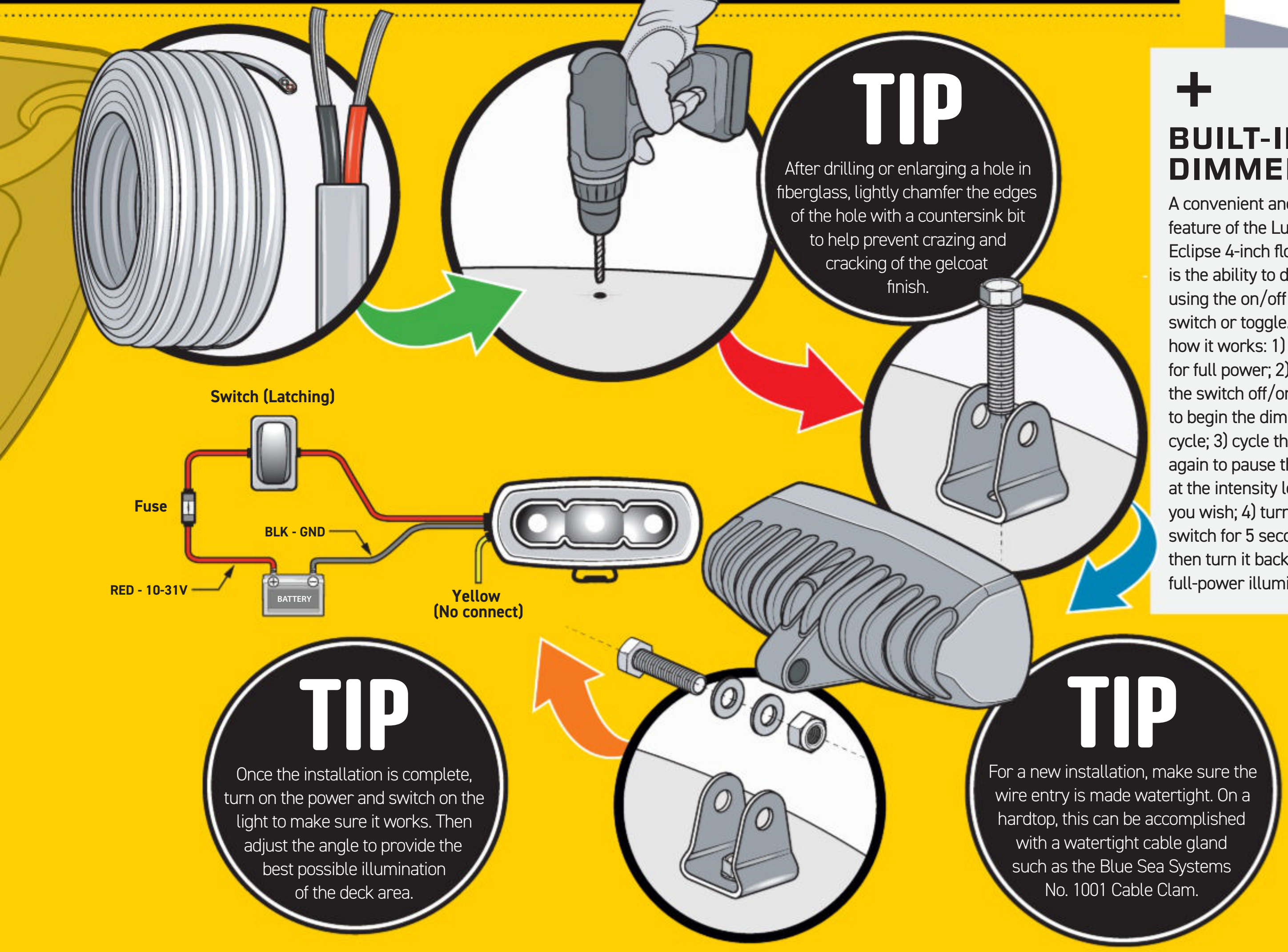
That makes the LED variety of spreaders attractive to boaters looking to upgrade their onboard lighting. LED spreaders are available from a number of brands, including Lumishore, Lumitech, Scandvik, Seavolt and others.

For this retrofit, we chose Lumishore's Eclipse 4-inch bracket-mounted 30-watt floodlight, which pumps out 1,500 fixture lumens of white light and draws a scant 1.7 amps at 12 volts. It features a powder-coated aluminum body, three LED elements, a frosted lens, and an IP68 waterproof rating. The 70- to 90-degree beam creates broad, even light coverage.

Before you get started, be certain that the electrical power is off during the installation. Here's how to proceed with this project.

—Jim Hendricks

ILLUSTRATIONS: JIM HATCH



TIP

After drilling or enlarging a hole in fiberglass, lightly chamfer the edges of the hole with a countersink bit to help prevent crazing and cracking of the gelcoat finish.

TIP

Once the installation is complete, turn on the power and switch on the light to make sure it works. Then adjust the angle to provide the best possible illumination of the deck area.

TIP

For a new installation, make sure the wire entry is made watertight. On a hardtop, this can be accomplished with a watertight cable gland such as the Blue Sea Systems No. 1001 Cable Clam.

+

BUILT-IN DIMMER

A convenient and cool feature of the Lumishore Eclipse 4-inch floodlight is the ability to dim it using the on/off latching switch or toggle. Here's how it works: 1) Turn on for full power; 2) cycle the switch off/on quickly to begin the dimming cycle; 3) cycle the switch again to pause the light at the intensity level that you wish; 4) turn off the switch for 5 seconds, then turn it back on for full-power illumination.

CHECK THE WIRING This retrofit is relatively easy if you can use the same wiring as you did with the old lights. However, inspect the existing wiring and connectors to ensure that there's no corrosion damage or chafed or broken insulation. Also make sure the wire is of sufficient gauge. If needed, run new American Boat & Yacht Council-approved wiring. Each Lumishore Eclipse spreader circuit requires two wires—a red positive and a black negative—a fuse and a simple on/off switch. To determine the correct gauge-wire and fuse size, visit the Blue Sea System circuit wizard at circuitwizard.bluesea.com.

MOUNTING HOLE You might find that the existing mounting hole from the previous light bracket is the same as the single 6.5 mm hole needed for the Lumishore stainless-steel bracket. If not, drill a new hole, or enlarge an existing hole to 6.5 mm in diameter. For a new installation, select a mounting location that is flat and thick enough for through-bolting the bracket. This could be the edge of a roof of a solid fiberglass hardtop that is at least ¼-inch in thickness or a vertical or horizontal metal tab that is welded in place on the upper part of the pipework for the top, put there specifically for adding overhead spreaders.

INSTALL THE BRACKET Fix the bracket in the alignment you need for the spreader to shine down onto the deck area. Insert the supplied M6 bolt through the bracket, then insert the M6 bolt through the hole in the mounting surface. The hardware kit includes a nylon locking nut and a washer to put behind the nut. If installing on a fiberglass top, bed the hardware with marine sealant. This step will help prevent cracking, crazing and water seepage. Secure the bracket with the supplied M6 nylon locking nut, and tighten. Louvres in the bracket help keep the bolt head from spinning while tightening the fastener.

MOUNT THE SPREADER Position the Lumishore Eclipse spreader light in the bracket so that the triplex wire is on the top side. Then mount the light to the installed bracket using the additional supplied M6 bolt, as well as the two nylon washers and nylon locking nut. Make sure the two nylon washers are placed inside the stainless-steel bracket, to protect the aluminum mounting surface on the back of the spreader light from suffering from electrolysis from two dissimilar metals coming in contact with each other. Tighten the stainless-steel hardware to a torque of 5 Nm. Do not overtighten.

CONNECT THE WIRING The pigtail on the spreader terminates with red/positive and black/negative wires, as well as yellow wire. For this project, ignore the yellow wire. Polarity is important with LEDs, so ensure that the red wire connects to a positive 12-volt power source and the black wire is to ground. Use crimp butt connectors with heat-shrink collars to connect the pigtail wires to the wires you've run to the mounting location. The connectors should be shielded from spray to deter corrosion. I tucked them inside the hardtop pipework and used a rubber grommet to protect the wiring from chafing and to prevent water intrusion.

ILLUSTRATIONS: JIM HATCH

ATLAS 190
INSTRUCTIONS
1 PULL PIN. TIRE EL PASADOR.
2 AIM AT BASE OF FIRE. APUNTE A LA BASE DEL FUEGO.
3 SQUEEZE LEVER. APRIETE LA PALANCA.
4 SWEEP SIDE TO SIDE. MUEVA DE LADO A LADO.
Kidde

READY YOUR SAFETY GEAR

Make inspections and updates a regular routine

Some boaters treat safety gear and anchors the same way: They have it all buried in a locker and will get it out when and if they need it. In this article, I suggest a more proactive approach. I encourage you to make an annual inventory of your safety equipment and schedule an inspection of each item (including your anchor, which, while not included below, does bear on your safety). Read on to find out how to inspect and update many items of boating safety. —*Kevin Falvey*

FLARES You are required by the United States Coast Guard to carry aboard a minimum of three pyrotechnic flares. So check yours, and replace those that have expired. Also replace any that may have gotten wet. For electronic flares, such as the ACR E-flare, check the batteries and perform a self-test according to the manual. And be sure to have an SOS flag aboard. This orange flag with the black square and circle is required to fulfill your daytime signaling requirement if you choose an electronic flare.

TIP When you discard a damaged life jacket, cut it up to ensure that no one garbage-picks it and puts it back into use.

FIRE EXTINGUISHERS The quantity and type of fire extinguishers required aboard varies by boat type. Check the regulations to make sure you have at least the required number of fire extinguishers of the proper type. Many extinguishers feature a gauge: Examine those for a reading in the "green." A "red" reading means discard or recharge the extinguisher. Additionally, check that the lock pin fits firmly in place and that the nozzle is not cracked or blocked. Nonrechargeable fire extinguishers must be replaced 12 years after the date of manufacture. This date is embossed on the bottom of the cylinder. Remember also that the USCG approval of your extinguisher is valid only if it's mounted with a Coast Guard-approved bracket.

LIFE JACKETS Examine life jackets for signs of wear. Tears, rips or missing buckles are all cause to discard a life jacket. Next, make a count of your crew. You'll need one for each person aboard. The life jackets also must be of the appropriate size for those who will wear them. Be sure to consider new additions to your crew, and examine possibilities such as your children having grown since the previous year. Ill-fitting life jackets are not safe. Finally, consider the use case. Life jackets suitable for calm water nearshore with imminent rescue expected are not suitable for open water, where rescue can take more time. Your life-jacket ratings must align with the type of boating you intend to do.

BEACONS The USCG recommends a monthly check of your EPIRB, PLB or other rescue beacons. Review the owner's manual, and learn how to perform a self-test to ensure proper operation. Improper testing can result in a distress signal being sent: Follow the manual explicitly. EPIRB batteries are usually good for five years. Check the unit's battery-replacement cycle and replace them, if specified. Also inspect for damage such as corrosion and cracking. What about mounts and clips? Are these still in good shape?

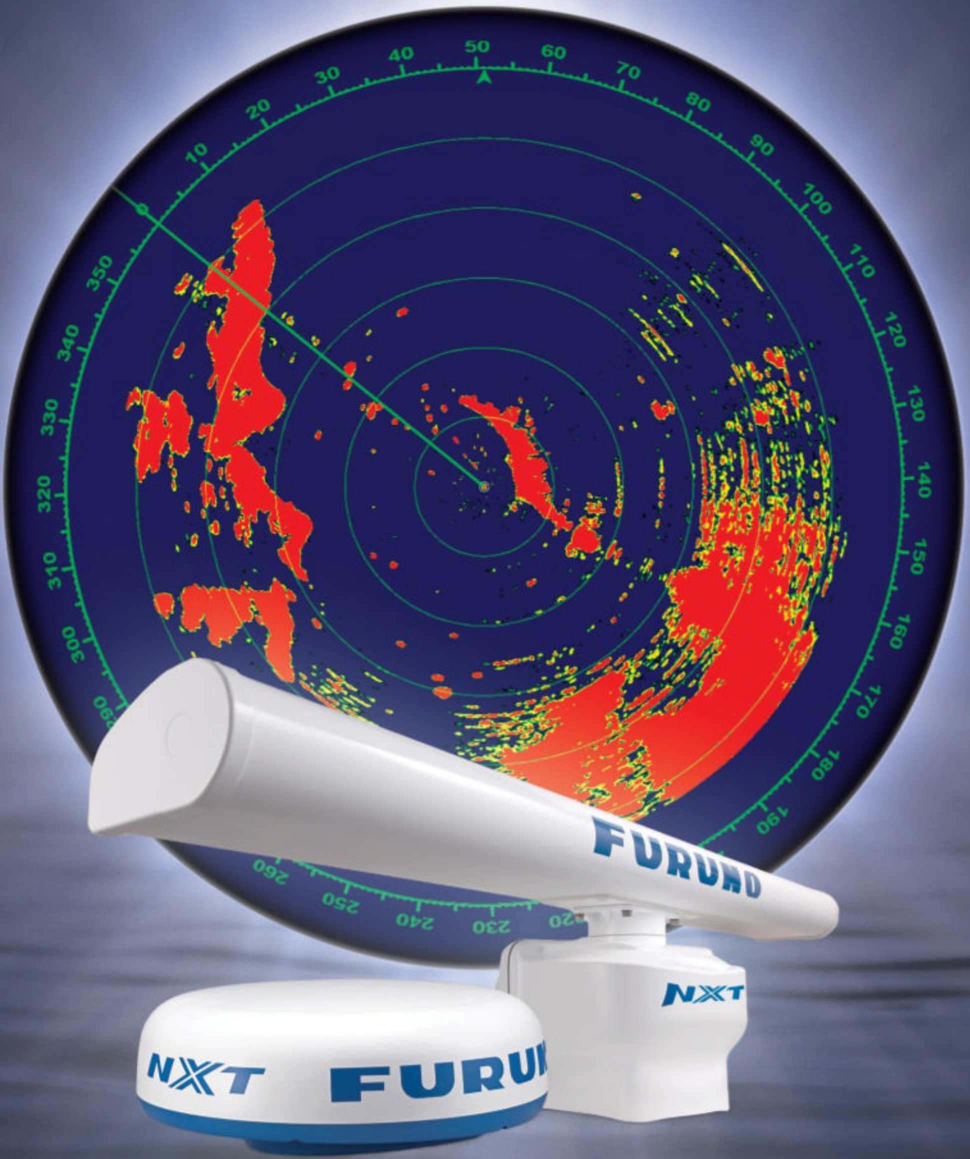
SOUND-SIGNALING DEVICES This requirement is usually fulfilled by virtue of an operating electric boat horn. Make sure it works, and always carry a spare fuse for it. As a backup, we recommend having aboard an air horn, a manually blown horn or a whistle. Check that these work too. Whistles are simple devices, but gunk, corrosion and time can do them in. Consider pinning a whistle to each life jacket. This is not required, but it will be a big help if ever needed in an emergency.

A GUIDE FOR BOATERS

The federal requirements for boaters can be found in the document "A Boater's Guide to the Federal Requirements for Recreational Boats." It's available to download in PDF format from the US Coast Guard. Visit uscgboating.org/links/regulations.php, and click on the boating guide under "Quick Links."

PHOTOS: (CLOCKWISE FROM TOP) COURTESY MUSTANG SURVIVAL, COURTESY WEST MARINE, COURTESY WEEMS AND PLATH, COURTESY ACR ELECTRONICS

FURUNO


FURUNO
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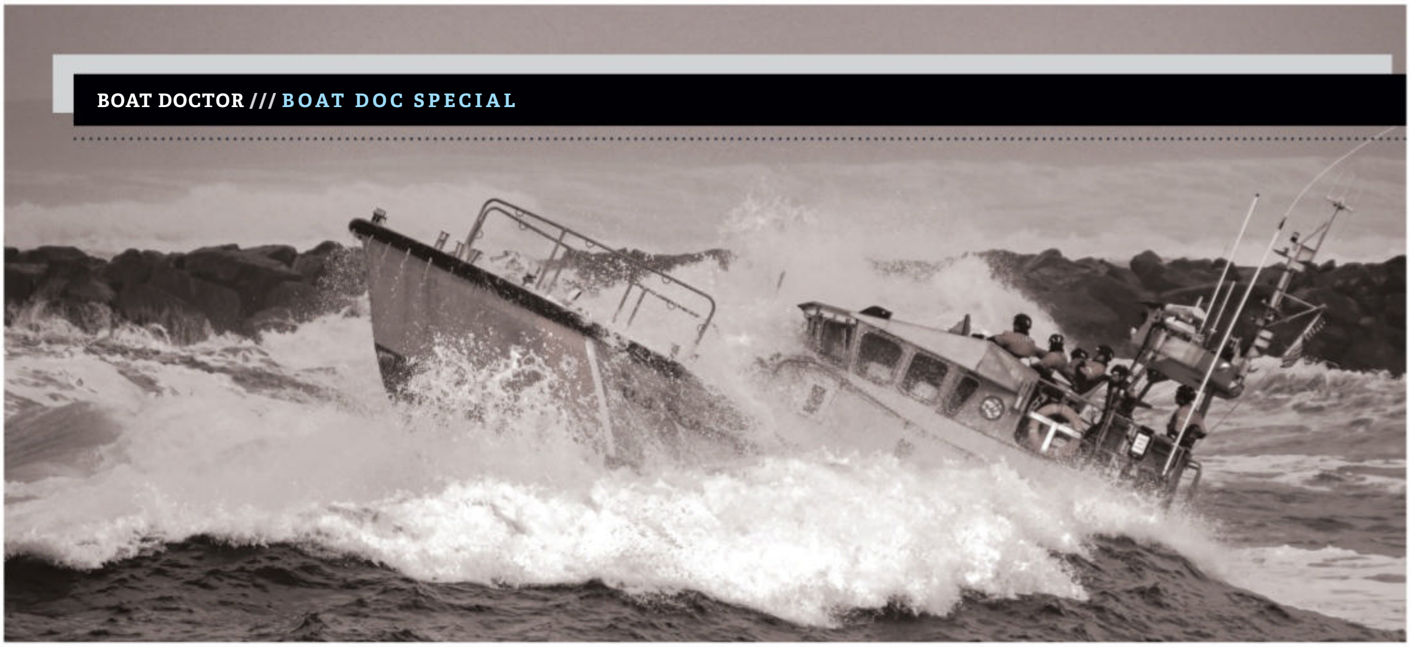
TZ touch XL



MOST DANGEROUS INLETS IN THE UNITED STATES

These 18 waterways require special US Coast Guard equipment and personnel.

The title of my article makes a bold statement. I'm basing it on the US Coast Guard requirements for establishing what's called a Surf Station. Surf Stations are required at locations where surf runs 8 feet or higher for more than 10 percent—that's 36 days—of the year.

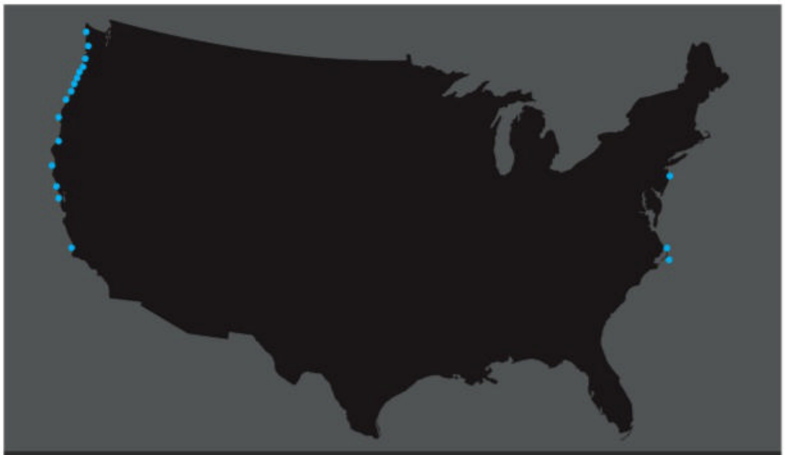
T

That's a real 8 feet measured by wave gauges and with lidar, not the 4-foot waves that some social-media sailors might call 8-footers. While the size of waves alone is not always the sole criteria for rough or dangerous seas, I think that prevalent 8-foot breaking waves qualifies.

The signature boat at a Surf Station is the 47 Motor Lifeboat (MLB), which can right itself from a capsize or pitchpole. You can read more about the 47 MLB on page 80 of this issue. Briefly, this boat is rated to operate in 30-foot seas or 20-foot surf in 50-knot winds.

Perhaps more important, Surf Station personnel, or Surfmen, are rated to operate the 47-foot MLB in its most extreme operating conditions after undergoing training at the National Motor Lifeboat School near the mouth of the Columbia River at Cape Disappointment, Washington. Surfmen is the highest qualification in the Coast Guard for small-boat operations. There are currently about 200 Surfmen in the Coast Guard, and only about 500 have ever earned the designation.

Most Surf Stations are on the Pacific Coast. But a number of Surf Stations also exist on the Atlantic Coast. What follows lists the most dangerous inlets in the US, clockwise, from northeast to northwest. If you will be navigating these or any coastal inlet, time your transit for incoming water and/or times when wind is not opposing the current, and get local knowledge. —*Kevin Falvey*



U.S.C.G. SURF STATIONS

With breaking surf over 8 feet in height, occurring for at least 36 days per year, these locations are served by special boats and people:

Barnegat Inlet, New Jersey
Oregon Inlet, North Carolina
Hatteras Inlet, North Carolina
Morro Bay, California
Golden Gate, California
Bodega Bay, California
Noyo River, California
Humboldt Bay, California
Chetco River, Oregon
Coos Bay, Oregon
Umpqua River, Oregon
Siuslaw River, Oregon
Yaquina Bay, Oregon
Depoe Bay, Oregon
Tillamook Bay, Oregon
Cape Disappointment, Washington
Grays Harbor, Washington
Quillayute River, Washington

PHOTOS: (FROM TOP) COURTESY U.S. COAST GUARD, AD_HOMINEM / ADOBE STOCK

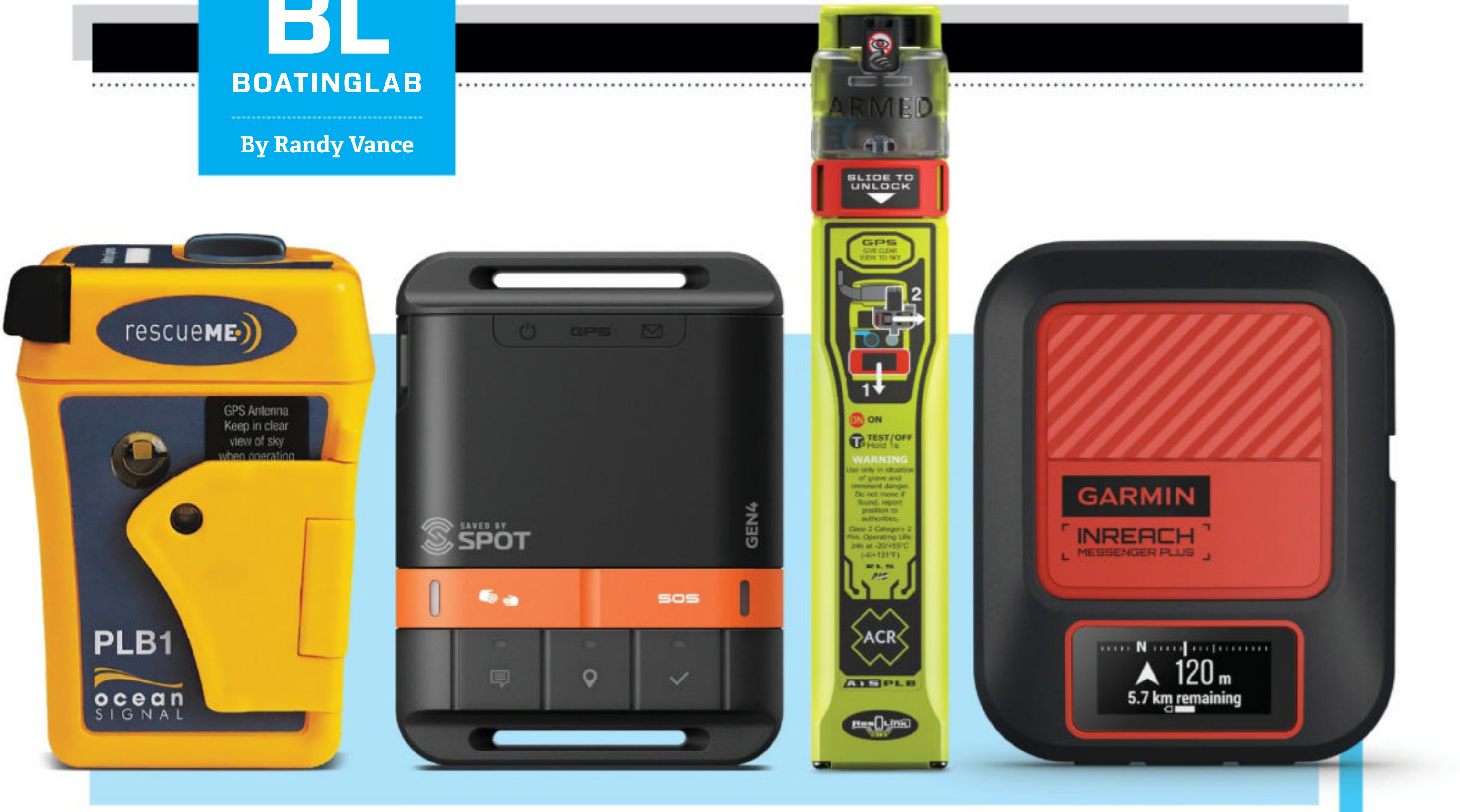
REVOLUTIONIZE
YOUR EXPERIENCE
CENTURION
Fi23
ROSWELL

The Roswell R1 Audio concept was born with a mission to change the way we experience sound on the water. Every product stamped with the R1 badge has been developed without compromise to produce the best acoustic quality possible and withstand the harshest marine environments. Roswell R1 Audio was engineered for excellence in every application to consume you in a place where imagination meets sound.

R1 | ROSWELL
MARINE AUDIO

roswellmarine.com

By Randy Vance



GET RESCUED

William Marshall ventured 20 miles offshore on November 15, 2024, and never expected to have catastrophic engine failure at sea. Worse yet, threatening storms forming ahead of weather reports loomed over them. He activated his EPIRB—a larger cousin to the PLB—and 45 minutes later, Sea Tow showed up, followed by a Coast Guard rescue boat. Loss of life was averted, and Marshall and his crew lived to fish another day.

This is just one of many rescue stories enabled by emergency locator beacons. Here is what you need to know about rescue PLBs and SOS messengers.

Personal locator beacons are designed to speed rescue by SAR teams via government-run Cospas-Sarsat satellites, which are programmed to notify appropriate response authorities—such as the US Coast Guard, or terrestrial rescuers for skiers and hikers—of an emergency. PLBs are the most compact and are being adopted with increasing frequency by recreational boaters.

Another type of beacon device is an SOS messenger, which is designed to use private communication satellites such as Globalstar to communicate with private rescue-coordination bureaus to reach rescue authorities at sea or in the wilderness. An added benefit to these is that they allow limited two-way communication, but unlike a PLB, they require a satellite-service fee.

IMPORTANT DISTINCTIONS

PLBs

- PLBs, until recently, could not talk back. Now, some offer limited satellite communications for an added fee.
- Only PLBs talk to Cospas-Sarsat constellations and are the gold standard for rescue.
- PLBs also transmit a 121.5 mHz homing signal to give final line-of-sight directions.
- Some PLBs also transmit an automatic information system message via VHF digital selective calling VHF radio, allowing nearby Good Samaritans to spring into action.
- No rescue signal fees are required for use.
- PLBs must be registered at beaconregistration.noaa.gov to effect a rescue.

SOS MESSENGERS

- These devices communicate via private satellite constellations to private rescue bureaus connected to local rescue authorities.
- They send SOS calls via private satellite constellations with frequent position updates.
- Unlike PLBs, they are designed to accommodate two-way communication via smart-device connections or predetermined messages entered into a web portal.
- Unlike PLBs, they require satellite service fees paid for specific periods—monthly or annually—and flexible fees based on units with two-way data transmission.
- SOS messengers must be registered with the manufacturer as part of subscription to generate an SOS response. Here are four examples in the SOS messenger/PLB genre.

PHOTOS: (FROM LEFT) COURTESY OCEAN SIGNAL, COURTESY SPOT, COURTESY ACR, COURTESY GARMIN

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10 BOW TO STERN WARRANTY LIFETIME STRUCTURAL

ACR

RESQLINK AIS

ACRARTEX.COM; $569.95 FOR USA REGISTRATION

ACR is one of two top names in PLBs, and this compact unit is simple and proven effective to use. This one adds AIS MOB transmitting on the digital select calling frequency to allow nearby Good Samaritans to hear the distress call and respond. Once it acquires a GPS position, it will simultaneously send an SOS signal to Cospas-Sarsat satellites, and that is transmitted to local or regional rescue officials, such as the US Coast Guard, optimally located for rescue. Before using the device, free registration with NOAA is required, and information about the vessel, the owner, emergency contacts and more help rescue teams coordinate with family or friends to effect rescue.

GPS and Galileo GNSS constellations
WATERPROOF: 16.4 feet (5 meters) at 1 hour, 33 feet (10 meters) at 10 minutes
FLOATS: No, but comes with floating carry case
DIMENSIONS: 7.87" (L) x 1.41" (W) x 0.86" (D)
WEIGHT: 6.7 oz. (190 g)
BATTERY LIFE: 5 years
OPERATING LIFE: 28 hours
SUBSCRIPTIONS: None

12:22
DEVICE
ResQLink AIS
SUMMARY
STATISTICS
TEST RESULTS
Result: PASS
Type: GNSS Test
VIEW
Result: PASS
Type: Self Test
VIEW
Result: PASS
Type: Self Test
VIEW
Result: PASS
Type: GNSS Test
VIEW
GNSS Self Test
2 Tests Completed
Longfield
Woodland
Longfield Hill
Hartley
Cobham
Camer Park Country Park
Henley Street
Meopham
New Ash Green
Luddesdown
HOME
MENU
ARMED
SLIDE TO UNLOCK
GPS
GIVE CLEAR VIEW TO SKY
2
1
ON
TEST/OFF Hold 1s
WARNING
ACR
AIS PLB
ResQLink

GPS
SAVED BY SPOT
GEN4
SOS

SPOT GEN4

SATELLITE GPS MESSENGER

FINDMESPOT.COM; $149.99

Spot brought the first private-enterprise SOS satellite messenger to boaters about 20 years ago. Advancements over the years culminated into the Gen4. Focus Point International, an international rescue coordinator, monitors satellite transmissions 24/7/365 and contacts the appropriate emergency responders to help coordinate rescue. In addition, they offer Overwatch Rescue services ($39.99 per year), which arrange and pay for rescue expenses such as airlift medivac. Preprogrammed messages can be sent to up to 10 preprogrammed contacts. Check-in and OK messages arrive with GPS coordinates. A help button summons assistance in a non-life-threatening situation. RAP, a roadside assistance program, can summon tow trucks. Batteries on hand determine operating time, allowing for extended messaging use.

GPS and Galileo GNSS
WATERPROOF: IPX8
FLOATS: No
DIMENSIONS: 1.04" x 2.66" x 3.48"
WEIGHT: 13.4 oz.
BATTERY LIFE: 4 AAA batteries (included)
OPERATING LIFE: Dependent on battery type
SUBSCRIPTIONS: From $11 per month to $143.40 per year
OVERWATCH RESCUE: $39.99 a year, pays for emergency evac and other expenses related to rescue

PHOTOS: (FROM LEFT) COURTESY ACR, COURTESY SPOT

SOLARA

S-250 DC | **S-250 CW** | S-250 C | S-310 CW | S-310 SC

THE SOLARA S-250 CW

CENTER WALKAROUND

YAMAHA

NMMA CERTIFIED

MADE IN USA

SCAN FOR FUN

GARMIN

IN REACH MESSENGER+
GARMIN.COM; $499

This unit not only sends an SOS to Garmin Response 24/7/365 rescue-coordination center, but it allows feedback to the victim on rescue status as well. The device also allows text, voice messaging, and photo transmissions from unit to unit or unit to contact info using a Bluetooth link to a smart device. Additionally, it has an LCD readout notifying of texts and message status. It can text family and friends your updated position at periods that you designate and allow them to track you on a mapping system. It can also generate turn-by-turn directions when smart devices are out of Wi-Fi or cellular range. The rechargeable battery can last up to 120 hours with frequent (2 minutes) messaging or 600 hours with 10-minute message intervals.

GPS and Galileo GNSS
WATERPROOF: IPX8 to 1 meter/30 minutes
FLOATS: No, but comes with a flotation pouch
DIMENSIONS: 3.1" (L) x 2.5" (W) x 0.9" (D)
WEIGHT: 4.1 oz. (116 g)
BATTERY LIFE: 1 year between charges
OPERATING LIFE Up to 600 hours, depending on messaging
WARRANTY: 5 years
SUBSCRIPTIONS: From $14.99 per month

9:41
Emergency Response
Today, 11:15 AM

I have an emergency, and I need you to send help.

Sending your request to cancel SOS. SOS will close when confirmation is received. Keep the inReach device powered on and in view of the sky until SOS closes.

GARMIN
INREACH
MESSENGER PLUS

Help is on the way. ETA: 25 min

rescueME
GPS Antenna
Keep in clear
view of sky
when operating
PLB1
ocean
SIGNAL

OCEAN SIGNAL

PLB1
OCEANSIGNAL.COM; $349.95

This is the most compact PLB available, weighing in at 4 ounces and smaller than a deck of waterproof playing cards. It's a good play to hedge your bets at a lower price due to the streamlined feature set. However, it meets every NOAA specification for a PLB. It communicates with Cospas-Sarsat with a 406 MHz satellite transmitter and provides a 121.5 MHz homing signal for final-position acquisition. A 1 candela LED strobe provides visual contact in the dark without diminishing its 24-hour operating time. It clips to a life jacket or tucks into a pocket for easy carriage and ready deployment.

GPS and Galileo GNSS
1 candela strobe
WATERPROOF: To 15 meters
FLOATS: No, but comes with a flotation pouch
DIMENSIONS: 3" (L) x 2.1" (W) x 1.3" (D)
WEIGHT: 4.09 oz. (116 g)
BATTERY LIFE: 7 years
OPERATING LIFE: 24 hours
WARRANTY: 5 years with free registration
SUBSCRIPTIONS: None

PHOTOS: (FROM TOP) COURTESY GARMIN, COURTESY OCEAN SIGNAL

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Essential live-saving equipment, bundled in a floating high-visibility bag. Features a rescue beacon with global coverage for emergency communication, a high-visibility strobe to help rescuers spot you, a PFD light, a signal mirror for daytime signaling and a whistle.

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BOATING CERTIFIED TEST

#3438

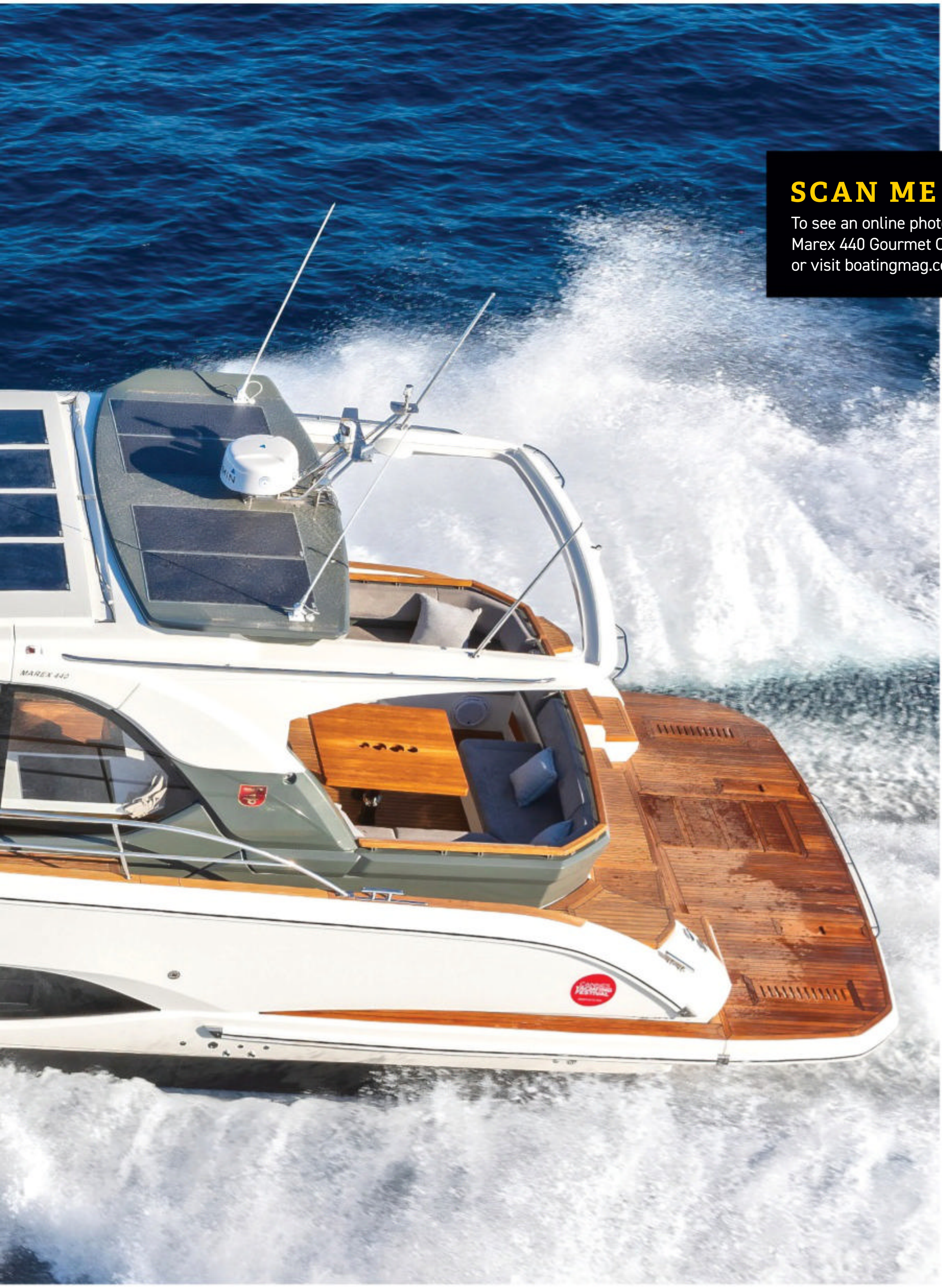
MAREX
440 GOURMET CRUISER

This boat's feature set includes many items, such as side-deck access and an easy-to-deploy cockpit enclosure, which shows that it has been designed by and for people who actively cruise.

PHOTO: COURTESY MAREX BOATS

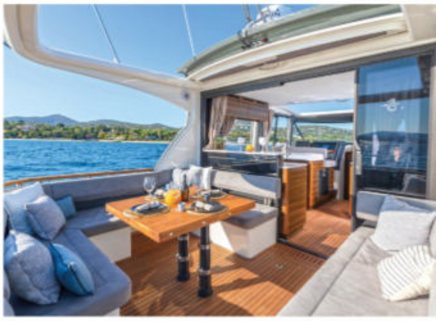
The Marex 440 Gourmet Cruiser showcases the Norwegian boatbuilder's decades of producing a combined classic style with class-leading comfort and well-thought-out functionality. Marex applies a user-focused approach to boating, inspired by an ownership and management team consisting of devoted cruisers.

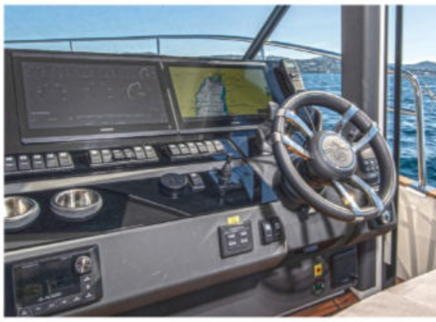
The Marex 440 is available in two versions: the Gourmet Cruiser we tested, and the Scandinavia, debuting in the US as we go to press. Both feature a cockpit that can rightly be called an exterior salon because they offer plush seating, sun and rain protection from an overhanging top with a sliding canvas insert, and further weather protection from Marex's unique and easily deployed



SCAN ME

To see an online photo gallery of the Marex 440 Gourmet Cruiser, scan this tag or visit boatingmag.com/3438.





PHOTOS: COURTESY MAREX BOATS

cockpit enclosure. Aboard the Scandinavia version, you'll find two almost-equal-size salons outside and inside, separated by a sliding glass door. The Gourmet Cruiser offers a larger U-shaped galley and bar. An electrically retractable window, in combination with a sliding door, provides a seamless connection between outside and inside. The lavishly equipped galley features an L bench, a U bench and Corian countertop, and is equivalent to the kitchen in a well-equipped Nordic villa.

The entire aft cockpit-salon consists of a huge seating area surrounding a solid, lowerable folding table around which 10 to 12 people can comfortably dine.

Sliding doors port and starboard at the helm grant access to wide side decks with their good handholds. This makes it easier for a couple to handle a boat this size, and its inclusion is evidence of Marex's boat-savvy philosophy. Aft, the tremendous teak-covered platform lowers hydraulically. It is nicely arranged for swimming or to ease dinghy handling. Integrated LED lighting lends a subdued and elegant atmosphere.

On the bow, find a substantial sun bed and, in the Nordic tradition, the Marex 440 sports an open-bow pulpit—the better to pull up to a rocky shore in that region's many natural harbors. Smart details like this are evident everywhere. For example, a whopping 10 bollards ring the deck to facilitate tying up in any situation.

> The track-mounted canvas cockpit enclosure deploys and stows quickly and easily, without cumbersome bows. It is a signature solution for Marex boat models.

Aboard the Gourmet Cruiser, we found comfortable seating for four people indoors in the direction of travel. Here, the back cushion is raised sufficiently from the seat cushion to provide space to stretch out on the bench if a person wants to lie down comfortably. In front of the double passenger seat, there is a solid and elegant folding table in teak.

The focus on details is also expressed in the command station. The entire helm area, including the window pillars, is matte gray to minimize glare. At the helm, there is room for two 16-inch screens, and all levers and control panels are placed logically and are easily accessible. The console adjusts electrically in and out for maximum comfort and easier access via the side door.

Both editions are also available in versions with two or three cabins, all with large hull windows. We tested the three-cabin version, which has two separate cabins amidships and a main cabin forward. The two-cabin version has a large cabin amidships with a transverse double berth. All versions come with two large and well-equipped head compartments. Another sign of design experience: Both heads and showers afford roominess for a larger-size man.

You can order a Marex 440 with your choice of three different engine configurations. The most affordable option consists of twin Volvo Penta D6-440 diesel DPI sterndrives. Our test boat featured twin Volvo Penta IPS 650 diesels. In addition, a third version with shaft drive (V-drive) and twin Volvo Penta D6-480 is offered.

Shopping? A similar-size cruiser available with a choice of Volvo Penta IPS or diesel Aquamatic sterndrive power is the Beneteau Gran Turismo 45 ($1,205,390 with twin IPS 600s and packed with niceties such as cockpit air-conditioning and a hydraulic swim platform). It doesn't offer the Marex's deep, wide side decks, but it possesses a larger cabin as a result. Another boat you might consider is the Nimbus 405 Coupe (about $800,000), which offers access to deep side decks from the helm and is inboard-powered, so it's a few knots slower than boats powered by IPS.

We tested the 440 with full tanks and recorded a top speed of 41 mph. It planed easily, delivering cruising speeds between 28 and 34 mph with noise levels averaging a low 69 decibels.

The 440 Gourmet Cruiser is optimized to meet the needs of boaters seeking a cruiser to serve as a luxurious, floating country house or cottage—one capable of 40 mph—and with features born of obvious time spent cruising. —*Atle Knutsen*

High Points

- ▶ The snubbed bow shape and the open pulpit ease disembarking when moored in bow-to situations, such as the many natural harbors found in the Nordic countries.
- ▶ Your choice of power: IPS, sterndrive or inboard.
- ▶ With more teak than the Burma Road, this boat will awaken the yachtsmen in buyers.

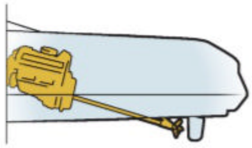
Low Point

- ▶ We'd like to see a few more inches of space between the wheel and the seat, even with the electrically adjustable helm.

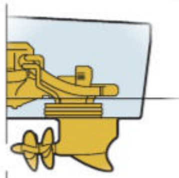
· **LOA:** 44'9" · **BEAM:** 14'0" · **DRAFT (MAX):** 3'3" · **DISPLACEMENT (APPROX.):** 28,660 lb. · **TRANSOM DEADRISE:** 13 degrees · **BRIDGE CLEARANCE:** 12'11" · **MAX CABIN HEADROOM:** 6'9" · **FUEL CAPACITY:** 314 gal. (2 x 157 gal.) · **MAX HORSEPOWER:** 960 · **AVAILABLE POWER:** Twin Volvo Penta diesel sterndrives, inboards or IPS to 960 hp total

Price: $1,437,366
(with test power; well-equipped)

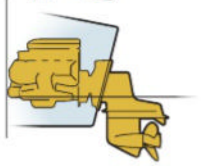
INBOARD



IPS DRIVE



STERN-DRIVE



HOW WE TESTED

ENGINES: Twin 480 hp Volvo Penta IPS 650 **DRIVE/PROP:** IPS/T5 **GEAR RATIO:**1.853:1 **FUEL LOAD:** 275 gal. **WATER ON BOARD:** 100 gal. **CREW WEIGHT:** 550 lb.

MAREX BOATS
marex.no

C
BOATING
CERTIFIED
TEST
RESULTS

SPEED			EFFICIENCY					OPERATION	
rpm	knots	mph	gph	naut. mpg	stat. mpg	n. mi. range	s. mi. range	angle	sound level
1750	10.0	11.6	11.6	0.9	1.0	244.5	281.4	NA	65
2000	11.1	12.8	17.1	0.6	0.7	183.1	210.7	NA	66
2250	13.1	15.1	21.5	0.6	0.7	172.5	198.5	NA	67
2500	17.9	20.6	25.3	0.7	0.8	200.0	230.1	NA	67
2750	22.5	25.9	27.2	0.8	1.0	233.8	269.1	NA	68
3000	27.6	31.8	33.0	0.8	1.0	236.3	271.9	NA	69
3500	33.6	38.7	44.3	0.8	0.9	214.5	246.9	NA	71
3600	35.1	40.4	49.6	0.7	0.8	200.0	230.2	NA	73

MOST ECONOMICAL CRUISING SPEED

PHOTO: COURTESY MAREX BOATS

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PHOTO: COURTESY TIARA YACHTS

SCAN ME

To watch our video walk-through on the Tiara 43 LE, scan this tag or go to boatingmag.com/3439.

The Tiara 43 LE is a luxury sport yacht with a rugged boatbuilding DNA that belies its opulence, ready to take on the snottiest of bluewater days outside the inlet yet equally suited to entertain at anchor or keep the crew ensconced in comfort on an overnighter. And it's got some next-level features that are sure to be crowd-pleasers.

Let's start with the 43 LE's performance. For some background, Tiara hails from Holland, Michigan, where it designs high-end boats built to withstand the rigors of boating in the Great Lakes, where the weather can turn in an instant and kick open ocean-size swells with tight periods that can beat down even the hardiest vessels. (For reference, listen to the legendary Gordon

C

BOATING CERTIFIED TEST

#3439

TIARA 43 LE

The perfect combination of rugged construction, sporty performance and elegant design.

GARMIN
Tiara
MERCURY
600
MERCURY
600
43LE

PHOTOS: COURTESY TIARA YACHTS

Lightfoot song "Wreck of the Edmund Fitzgerald.") Tiara cuts no corners in the construction process, producing a stout boat with a beefy stringer system and interior build that holds up tremendously over time. You'll hear no rattles, creaks or groans while running through a pounding sea. At 24,000 pounds and with a wide 13-foot beam, it can knock down rollers and knife through sloppy seas with its V-hull that tapers to 21 degrees at the transom.

Tiara offers only one power option for the 43 LE: a pair of Mercury 600 hp Verado V-12 outboards that help this beast achieve peak performance. On test day, with five people aboard and an 81 percent fuel load, we climbed onto plane in about 5 seconds and reached 30 mph in just over 11 seconds. Thanks to Mercury's Active Trim, the boat did not squat coming out of the hole, keeping sightlines intact from the helm the entire time. We recorded a top end of 47.1 mph at 6,000 rpm on test day; during internal tests with Mercury, Tiara recorded a top speed of 51.4 mph at 6,158 rpm. Notably, the 43 LE

cruised exceptionally well at 4,500 rpm, with a cruising speed of 34.6 mph, where we just felt dialed in as if we were gliding along the water. Drop back to 3,500 rpm and 23.7 mph, and the 43 LE has a maximum range of 313 statute miles, thanks to its 540-gallon fuel tank. That's a range worthy of a run across Lake Michigan or a weekend jaunt to the Bahamas. If the seas get really rough, Tiara offers the option to add a Seakeeper 6 gyrostabilizer to help keep the crew comfortable. Mercury DTS controls allow for smooth, effortless handling—we carved S-curves as if we were in a 20-foot sportboat. For close-quarters handling, you'll appreciate the Mercury joystick system. If you really want a leg up on docking, opt for the Mercury integrated bow-thruster system.

One of the coolest features you can find aboard the 43 LE has to be the rotating cockpit lounge. From its standard forward-facing position, you can rotate it 45 degrees to port to face the electrically actuated terrace, which basically drops the portside gunwale fully horizontal to water level for swimming access. (Safety note: The terrace will deploy and retract only when the ignition is turned off.) The lounge also rotates a full 180 degrees aft to face the transom.

Want to watch the game while lounging in the cockpit? Press a button, and a flat-screen TV drops down from the hardtop.

Even beyond the lounge, the 43 LE is packed with luxury amenities, especially in the main cabin that houses the helm station. Notably, the aft bulkhead has a glass-door system that opens wide for an unfettered view of the cockpit and all that's going on behind the helm, allowing the captain to be in contact with the crew while manning the wheel. In inclement weather, you can close up the cabin and cruise in climate-controlled luxury. The salon features several standard amenities such as a teak sole, pop-up TV, expansive portside lounge with a teak table, and a galley with beautiful cabinetry, a sink, a microwave and a dual-burner cooktop. The expansive windows ensure that everyone has an excellent view of the water, no matter where they're seated. Most importantly, the vantage point from the helm is excellent, with easy access from the captain's chair to the controls, Mercury Vessel View display, and the twin flush-mounted Garmin 16-inch GPSMap multifunction displays.

Belowdecks, the two large cabins sleep four people. The forward cabin features an island berth, while the aft cabin spans the complete beam of the boat. The well-appointed head features designer style and a separate shower stall. With 6 feet, 5 inches of headroom at the tallest point belowdecks, it does not feel claustrophobic or confining, especially with the cabin windows adding copious natural light.

Competitors? You'll find plenty of outboard options in the 40- to 50-foot center-console market, but for a closed salon, check out the MJM 4, which starts at $1,881,827 with twin 600 Verados. The MJM is more of a downeast-style boat with a traditional aft cockpit layout, but it does have a bow lounge and the option for twin 400 hp Volvo Penta sterndrive diesels. The Cruisers 42 GLS OB offers outboard power and actuated gunwales that drop down for water access, but it has a more open layout under the hardtop. The Cruisers also sells in the $1.5-plus-million range with twin 600 Verados.

Overall, the Tiara 43 LE is a sport cruiser that can get you anywhere you want to go in style and comfort, with a rugged, well-built hull, and the amenities and performance to keep the captain and crew happy all day—and night too. *—Pete McDonald*

High Points

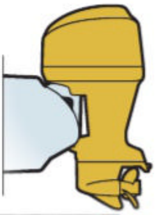
- ▶ Kudos to Tiara for installing a functional bow rail as well as handrails on the hardtop to ensure safe transit to the bow area.
- ▶ Tiara increased the fuel capacity from 400 gallons on the older version to 540 gallons, increasing its optimal range by nearly 100 miles at cruising speeds.
- ▶ The optional fishing package adds rod holders, a livewell and a bait-prep station.

Low Point

- ▶ The salon countertops are aesthetically pleasing but, with no fiddles, things can slide off if another boat rocks your anchorage.

▪ **LOA:** 43'6" ▪ **BEAM:** 13' ▪ **DRAFT:** 3'5" (drives down) ▪ **DISPLACEMENT:** 24,000 lb. ▪ **TRANSOM DEADRISE:** 21 degrees ▪ **BRIDGE CLEARANCE:** 11'2" ▪ **MAX CABIN HEADROOM:** 6'5" ▪ **FUEL CAPACITY:** 540 gal. ▪ **MAX HORSEPOWER:** 1,200 ▪ **AVAILABLE POWER:** Twin Mercury 600 hp Verado V-12 outboards

Price: $1,560,425 (base)



AVAILABLE POWER:
OUTBOARD

HOW WE TESTED

ENGINES: Twin Mercury 600 Verados **DRIVE/PROPS:** Outboard/Verado 12 15¾" x 26" 3-blade and 17½" x 26" 4-blade stainless steel **GEAR RATIO:** 2.50:1 **FUEL LOAD:** 438 gal. **CREW WEIGHT:** 800 lb.

TIARA YACHTS
Holland, Michigan; tiarayachts.com

BOATING CERTIFIED TEST RESULTS

SPEED			EFFICIENCY					OPERATION	
rpm	knots	mph	gph	naut. mpg	stat. mpg	n. mi. range	s. mi. range	angle	sound level
1000	4.2	4.8	3.8	1.1	1.3	533.5	613.9	1	67
1500	6.0	6.9	5.5	1.1	1.3	529.8	609.7	1	69
2000	7.7	8.9	8.8	0.9	1.0	427.1	491.5	2	70
2500	9.2	10.6	12.7	0.7	0.8	352.5	405.6	2	71
3000	10.9	12.5	19.7	0.6	0.6	268.0	308.4	3	71
3500	20.6	23.7	36.8	0.6	0.6	272.0	313.0	3	77
4000	23.8	27.4	46.8	0.5	0.6	247.3	284.5	3	79
4500	30.1	34.6	71.7	0.4	0.5	203.8	234.5	2	83
5000	34.5	39.7	84.5	0.4	0.5	198.4	228.3	2	86
5500	39.5	45.4	90.4	0.4	0.5	212.1	244.1	2	88
6000	40.9	47.1	97.2	0.4	0.5	204.6	235.5	0	89

MOST ECONOMICAL CRUISING SPEED

PHOTO: COURTESY TIARA YACHTS

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Explorer Series GX1850 – Fixed Mount VHF / NMEA2000 with Second Station Capability
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BOATING CERTIFIED TEST

#3440

PURSUIT S 328 SPORT

Pursuit's completely overhauled S 328 features a host of improvements and one super-seaworthy hull.

PHOTO: COURTESY PURSUIT BOATS

On our outing aboard the newly revamped Pursuit S 328 Sport, I realized why Pursuit is the perfect name for this builder. Fishermen are always in pursuit, but the conditions, well, they're not always perfect. This applies equally to boaters simply seeking to head home after a day at the beach or a weekend up the coast. In fact, conditions can be downright crappy, as we discovered after leaving the dock. I'm not exactly inexperienced, having endured everything from meltemis on the Aegean to mistrals in the Med to Santa Anas in the Catalina Channel. But the Gulf Stream—that massive ocean river flowing implacably north at several knots—can turn growlers into whitecapped square-edged opponents.

YAMAHA
PURSUIT

SCAN ME

To see our online photo gallery of the Pursuit S 328 Sport, scan this tag or visit boatingmag.com/3440.

PHOTOS: COURTESY PURSUIT BOATS

Set the stage: It was blowing a solid 30-plus, and we were heading directly into it at over 50 mph with the twin Yamaha 350s hard against the stops. That gave us an 80 mph breeze across the deck, or easily a Category 1 hurricane.

I was settled comfortably in the aft-facing foldout couch behind my two companions in the helm seats, who were protected from that hurricane and occasional misting of spray by the dashboard-to-hardtop windshield and side glass. The (remaining) strands of my hair were barely ruffled as I watched the long white ribbon of wake behind us. It may not have been perfect weather, but it was clearly Pursuit weather. Let's go!

The S 328 is a reimagining of an earlier 328, which was the bestselling 32-footer on the market for more than eight years. It takes courage to tinker with success, but Pursuit interrogated owners and dealers to find out how to make it better. And Pursuit did.

Consider the cockpit. It now has a transom cooler with dividers but without sacrificing any transom rod holders (five behind the cooler, eight

on the hardtop, with two facing out for kingfish, more in the coaming). The opening of the Oceana Blue 24-gallon livewell is bigger to take larger nets and, in the sole, there are two large fish boxes with 2 inches of insulation. Two fold-down lounges face a pair of removable tables (dedicated storage is provided) that can also be used forward. An oversize hatch opens to a mechanical space with filters, plumbing, and the optional 5 kW Fischer-Panda diesel genset ($27,285 with a 16-gallon tank). All are easy to reach and all clearly labeled.

Unlike many boats with either one or the other, the cockpit seat folds away, revealing an entertainment center with an extra-wide sink—better for laying out your ballyhoo full length—and a Kenyon grill. Tackle storage fills the drawers, and there are ample under-gunwale rod racks, plus more in the hardtop and cabin. And the fully opening port boarding door has hinges and a latch that may have been stolen from Fort Knox, plus a dive-style four-step boarding ladder.

You can walk across the transom in front of the engines easily and without obstruction. Great design and execution!

The skipper and one (or two) companions get the royal treatment with comfy seats, bolsters and flip-down footrests at the helm. The dash features twin 16-inch Garmin recessed monitors above Yamaha throttles, Lenco trim tabs and Carling backlit rocker switches. The monitors also display the custom-configured Pursuit interface as part of the Puretech Suite, which also includes a Siren Marine app-based remote monitoring and security system. JL Audio throughout includes multiple hardtop speakers. A Lewmar electric bow thruster makes maneuvering painless. The sliding hatch above the seating provides a breeze if needed, as does the electric vent at the top of the windshield. A hinged panel under the dash folds down to become a raised floor for skippers who want some extra height. I liked the DC power panel that was knee-high next to the helm seat.

Forward, D-shaped seating (with electric backrests) wraps around the bow, sharing removable tables with the forward-facing lounge. Kids love the bow, and this Pursuit has high-backs for secure bowriding. A Lewmar horizontal windlass is beneath a foredeck hatch, with through-bow roller and both fresh- and saltwater washdowns.

Getting forward is both safe and easy, with 35-inch-deep walkways and 22 inches between console and coaming. No scrunching sideways here!

While the console seems low-profile, it has 6 feet, 2 inches of headroom and a convertible settee that slides out one-handed to become a V-berth. A VacuFlush porcelain toilet is just aft of the berth, and a Skandvik ceramic sink is on a mini vanity. With the Panda genset, you get an air-conditioned cabin for overnighting, and the 40-gallon diesel tank provides 40 hours of running time.

Underway, the S 328 Sport was a delight. Even in our "hurricane winds," the spray was cast aside by the chine flats, the steering was precise and predictable, and the boat seemed immune to the seas and chop that we encountered. A Seakeeper gyrostabilizer is an option, but I don't think that Aunt Edna would need it to keep from turning green. At trolling speeds, this Pursuit was solid.

Shopping around? Check out the Boston Whaler 330 Outrage, which costs $424,016 with twin Mercury 300s ($464,580 with twin Mercury 400 V-10s) and no berth, just a head inside the console.

A motto often linked to Pursuit is "Fishing First," and that's certainly true, but I think a better adage is "Fishing and Family First." This Pursuit checks a lot of boxes. *—Capt. Chris Caswell*

High Points

- ▶ Flush ports for both engines are easily accessed in aft cockpit.
- ▶ Deep, 2-inch cockpit gutters handle spray, rain and exuberant washdowns.
- ▶ Flush transom platform allows walking across.

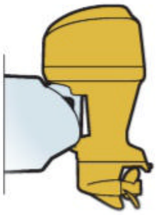
Low Points

- ▶ Cabin entry is narrow.
- ▶ Bow seating cushions are not removable. They won't blow away, but this might hinder some casting efforts.

· **LOA:** 34'6" · **BEAM:** 10'10" · **DRAFT:** 3'0" (motors down) · **DISPLACEMENT:** 12,975 lb. (F300 engines) · **TRANSOM DEADRISE:** 20 degrees · **MAX CABIN HEADROOM:** 6'2" · **BRIDGE CLEARANCE:** 9'0" · **FUEL CAPACITY:** 300 gal. · **AVAILABLE POWER:** Twin Yamaha F300s or F350s

Price: $493,880
(with test engines)

AVAILABLE POWER:
OUTBOARD



HOW WE TESTED

ENGINES: Twin Yamaha F350 outboards **DRIVE/PROPS:** Outboard/15" x 20" SWS II 3-blade stainless steel **GEAR RATIO:** 1.75:1 **FUEL LOAD:** 275 gal. **CREW WEIGHT:** 700 lb.

PURSUIT BOATS
Fort Pierce, Florida; pursuitboats.com

C
BOATING
CERTIFIED
TEST
RESULTS

SPEED			EFFICIENCY					OPERATION	
rpm	knots	mph	gph	naut. mpg	stat. mpg	n. mi. range	s. mi. range	angle	sound level
600	3.3	3.8	1.3	2.5	2.9	685.8	789.2	1	61
1500	6.3	7.2	4.4	1.4	1.6	383.9	441.8	2	65
2000	7.5	8.6	7.4	1.0	1.2	272.7	313.8	2	68
2500	8.5	9.8	12.5	0.7	0.8	183.9	211.7	2	73
3000	13.5	15.5	16.5	0.8	0.9	220.4	253.6	3	79
3500	20.4	23.5	20.4	1.0	1.2	270.3	311.0	5	82
4000	25.9	29.8	26.1	1.0	1.1	267.9	308.3	4	83
4500	30.4	35.0	32.4	0.9	1.1	253.5	291.7	4	84
5000	34.3	39.5	44.7	0.8	0.9	207.3	238.6	4	87
5400	38.2	44.0	58.2	0.7	0.8	177.4	204.1	4	88
5925	38.7	44.5	61.5	0.6	0.7	169.8	195.4	4	89

MOST ECONOMICAL CRUISING SPEED

PHOTO: COURTESY PURSUIT BOATS

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PHOTO: COURTESY GRADY-WHITE BOATS

SCAN ME

Watch a video highlighting key features of the Grady-White Freedom 345 by scanning this tag or visiting boatingmag.com/3441.

It is Grady-White's consistent adherence to its style points that tells all other boaters that they are looking at a Grady, even when the nameplate is not visible. So it is with the new Freedom 345 dual-console. Its high bow deflects seas and their spray and sweeps gently to gunwales in a cockpit ideally proportioned to allow anglers to manage fish boatside or entertain a crowd.

The ride is gentle thanks to the SeaV2 hull. This trademarked hull design of every Grady gives a smooth ride with a crisp stem and sharp deadrise forward that spreads out to 20 degrees at the transom. The effect cleaves waves, sliding through them without rattling hatches—or teeth. It's the wider deadrise aft which gives Grady the at-rest stability that eases footing aboard when trolling or bottom-

#3441

BOATING CERTIFIED TEST

GRADY-WHITE FREEDOM 345

Built tough and ready to fish—and unmistakably Grady, thanks to its smooth-riding SeaV2 hull and classic stylish lines.

GRADY-WHITE
YAMAHA

PHOTOS: COURTESY GRADY-WHITE BOATS

fishing and makes cruising enjoyable for all.

When equipped with Yamaha's full-maneuverability joystick option, station-keeping while awaiting a slot at the fuel dock is a hands-free affair; just tap the button. Other settings allow the boat to drift a weed line maintaining optimal fishing orientation, or hover over a bottomfishing target with efficiency by allowing the boat to rotate to an orientation most easily held while maintaining position.

The 345 is built tough with multiple layers of woven fiberglass that overlap at the keel, further strengthening the build. But before any of that is laid up, the perfectly glossy mold is gelcoated and then protected with a barrier coat that helps resist woven roving print through and ensures that the exterior finish is as smooth as a mirror—and nearly as reflective. This kind of work ensures that owners can take pride in their vessel for decades.

Also adding to that satisfaction are style points such as multiple contrasting textures and colors of seating vinyl, including black

accents, diamond stitching, and durable mildew-resistant and stain-resistant washable vinyl surfaces that are tough enough to keep the interior as shipshape as the exterior.

In the compartments below, a head includes a teak hatch to hide the toilet. The sink features mother-of-pearl tile backsplash. Grout joints are almost invisible between mosaiclike tile.

A second compartment provides a lounge that converts to a double berth at the tap of a button. Recessed lighting present in both compartments, along with the upscale decor, adds a comforting, roomy feel, and upholstery is the same tough material found topside. To cap it all, cabinets boast shop-built fluted wood doors that add a craftsman's excellence.

The 345 is built to carry a large crew with spacious bow seating, a powered extendable lounge seat forward, and a broad, fold-away transom seat. Bow seats include inclined backrests and folding armrests. The seating angle is ideal, and armrests add comfort. Coaming compartments (remember those black vinyl accents?) boast dual phone-charger ports on both sides, cup holders, and storage areas for sunscreen. The center forward seat folds up to grant access to the windlass. Cushions all stow away for hardcore angling. Coaming pads complete the wraparound seating backs, as does the transom bolster aft. Both serve anglers, offering a comfortable brace against the fish while they tuck their toes under cockpit rails on the deck. That's another Grady-White touch that you'll find on nearly every boat.

> Extension rods make operating seacock levers located deep in the bilge easy to do without crawling into the compartment.

The cockpit sports an entertainment galley with grill, refrigerator and freshwater sink. Air conditioning in the cockpit is available, as is a genset and Seakeeper to better manage ocean motion for sensitive stomachs. Dual captain's chairs are positioned well and are adjustable for optimal reach to the helm and throttle. To port is an L-shaped lounge, which can convert to a full sun pad by using a table insert and a cushion.

The Freedom 345 offers dual boarding doors to double boarding options and provide an easy way to slide pelagic trophies on board.

Boston Whaler is the arch competitor of Grady-White, and its Vantage 330 brings Whaler's own platform for a casual, luxury approach to fishing in the Vantage 330. Its base price with dual Mercury 400s and joystick steering is $531,097 and pushes the boat to 56 mph. Whaler offers a single dive door and a transom door. Grady's interior decor is more traditional with softer lines, while Whaler's reads "BMW" with a more angular, rectangular theme. Both offer a retractable cockpit shade and removable bow shades.

Grady's fishing amenities include well-positioned rod holders on the transom and gunwales, plus undergunwale storage and hardtop rocket launchers. Optional outriggers will make it pelagic-ready. The livewell features a vertical plenum, which causes water to circulate around the tall tank, ensuring that no bait gathers in corners or finds its way to unoxygenated water. The exclusive design has been proven effective for decades.

Access to the bilge is manageable for changing filters and servicing mechanics. Yamaha flushing ports inside the boat also ease end-of-day chores.

The Freedom 345 is designed to boat in style, fish effectively, and do it free of undue ownership obligations. *—Randy Vance*

High Points

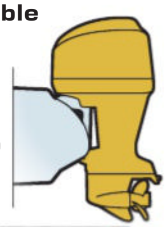
- ▶ Dual fuel-fill ports means simpler mooring at the fuel dock.
- ▶ Retractable deck shade cools the aft deck.

Low Points

- ▶ Having a transom fish box and livewell eliminates a transom door, replaced by both port and starboard dive doors.
- ▶ The 345 is behind some competitors, who are exchanging charger ports for inductive chargers throughout their boats.

· **LOA:** 33'6" · **BEAM:** 11'7" · **DRAFT (MAX):** 2'3" (engines up) · **DISPLACEMENT (APPROX.):** 12,500 lb. (without engines) · **TRANSOM DEADRISE:** 20 degrees · **BRIDGE CLEARANCE:** 9'5" · **FUEL CAPACITY:** 293 gal. · **MAX HORSEPOWER:** 1,050 · **AVAILABLE POWER:** Twin or triple Yamaha outboards to 1,050 hp total

Price: Not available
(at press time)



AVAILABLE POWER:
OUTBOARD

HOW WE TESTED

ENGINES: Triple Yamaha 350 **DRIVE/PROPS:** Outboard/15¼" x 19" SWS II SDS **GEAR RATIO:** 1.75:1 **FUEL LOAD:** 75 gal. **WATER ON BOARD:** 0 gal. **CREW WEIGHT:** 600 lb.

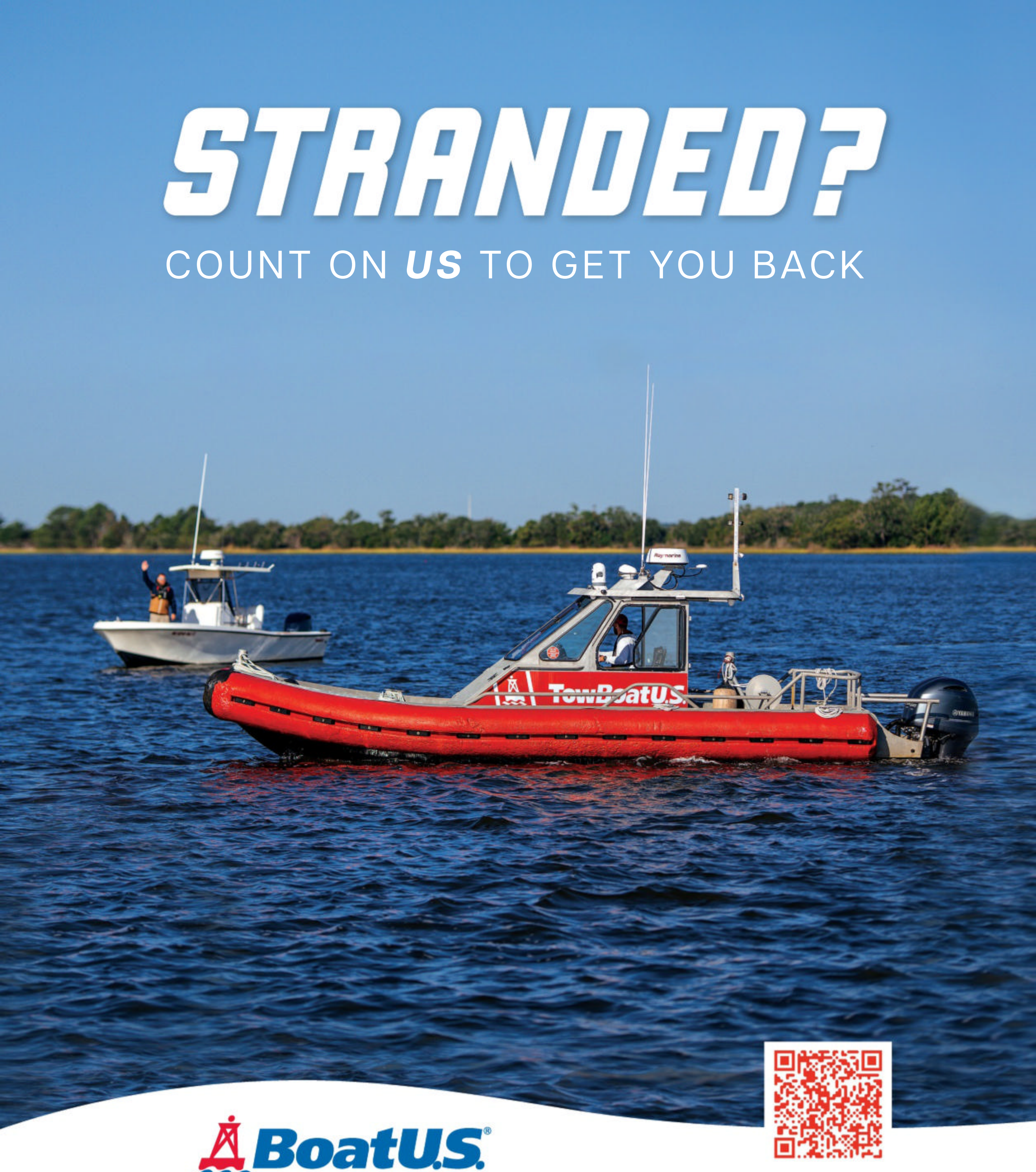
GRADY-WHITE BOATS
Greenville, North Carolina; gradywhite.com

BOATING
CERTIFIED
TEST
RESULTS

SPEED			EFFICIENCY					OPERATION	
rpm	knots	mph	gph	naut. mpg	stat. mpg	n. mi. range	s. mi. range	angle	sound level
1000	5.6	6.4	3.6	1.5	1.8	407.4	468.8	0	60
1500	7.3	8.4	6.1	1.2	1.4	315.5	363.1	2	66
2000	7.8	9.0	10.0	0.8	0.9	206.2	237.3	5	75
2500	13.6	15.7	13.5	1.0	1.2	265.6	305.7	7	80
3000	19.0	21.9	20.2	0.9	1.1	248.4	285.9	6	84
3500	25.8	29.7	25.8	1.0	1.2	263.8	303.6	4	88
4000	30.7	35.4	31.0	1.0	1.1	261.3	300.7	3	90
4500	35.2	40.6	41.3	0.9	1.0	225.0	258.9	3	91
5000	38.6	44.5	51.5	0.8	0.9	197.8	227.6	3	92
5500	43.4	50.0	71.6	0.6	0.7	159.9	184.0	2	94
6000	48.7	56.1	87.4	0.6	0.6	147.1	169.3	2	96

MOST ECONOMICAL CRUISING SPEED

PHOTO: COURTESY GRADY-WHITE BOATS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BOATING CERTIFIED TEST

#3442

SCOUT
261 XSS

A finely finished fishboat melding high performance, big-water capability, and shallow-water angling ability.

PHOTO: COURTESY SCOUT BOATS

Scout's 261 XSS is a 26-foot crossover offshore/bay boat that's as well-suited for bay-hopping as it is for afternoon sandbar gathering, family watersports outings and, of course, big-water or shallow-water fishing. Scout calls it a "luxury bay/offshore hybrid." With Mercury's 400 Verado V-10, it topped out at nearly 60 mph, planed in 7 seconds, and hit 30 mph in 11 seconds. The Merc teams with Scout's double-stepped hull to deliver efficiency and yee-haw!

Shoppers will note that Regulator's 26XO compares closely with the Scout on a number of fronts. At $225,395 equipped with a Yamaha 425 hp XTO outboard, the Regulator tops out at 53 mph and also features top quality and versatility.

Scout
MERCURY

SCAN ME

To see a photo gallery for the Scout 261 XSS, scan this tag or go to boatingmag.com/3442.

PHOTOS: COURTESY SCOUT BOATS

The 261 XSS's hull reacts quickly to throttle and steering input, whether at lower or higher speeds. It carves turns sharply and with authority, even if the turn is interrupted or made sharper midway through. The sharp V-entry at the bow flattens to 15 degrees deadrise at the transom, so the hull can ply the flats and shallows while the sharp entry knife-cuts the stiff waves out in the rough. From a forward angle, alongside or viewed from the stern, the 261 XSS shows a sporty, arrowlike profile; it looks fast even when trolling, thanks to the smooth lines of the tumblehome sheerline and reverse-angle transom.

Scout's build utilizes computer-generated state-of-the-art design and no-wood construction. The vacuum-epoxy infused layup uses closed-cell foam for flotation, for sound deadening, and for a high strength-to-weight ratio, as well as an automotive-rated Class A gelcoat finish. The double-stepped hull features a set-back transom to put the engine's gear case in cleaner water for higher mounting capability, which means less drag, more performance and better efficiency.

PHOTO: COURTESY SCOUT BOATS

Aboard, the cockpit is self-bailing. That provides convenience washing down, and a great comfort on big waters. Spacious raised casting decks fore and aft provide ample room for anglers or sunbathers, depending on your plans. The bow's large upper foredeck proves a great spot for mounting a trolling motor and houses a large anchor locker. Step down, and the bow seating area features a wraparound three-piece lounge with dry storage underneath, and removable backrests. Cubbies, cup holders and charging ports are at hand. All of the bow cushions stow in the console, adding to the 261 XSS's versatility.

A great comfort and convenience feature about Scout decks is that the entire deck of the 261 is fitted with SeaDek EVA closed-foam nonskid in an array of colors.

The center console features a large storage box forward, its lid sealed with a rubber gasket to keep contents dry, and mounted to articulating stainless-steel hinges for ease of access. The storage locker is topped with an oversize, diamond-pleated upholstered lounge seat, with foldable armrests and a phone charger.

> Every hole aboard the 261 XSS—whether for speakers, cup holders, rod holders, cubbies—is fitted with a drain tube that drains onto the self-bailing deck, not into the bilge.

The center console and T-top assembly form an integral part of the boat, crafted from fiberglass, carbon fiber and epoxy. The windshield is automotive safety acrylic, bedded in place, same as on your truck, for a clean, seamless appearance. The T-top features a forward laser light bar, spreader light, forward-firing stereo speakers, and a horn. The port side of the console opens to access the inside, where a porcelain head resides in a surprisingly open space, not cramped in the least.

The entire dash is a flat screen—"glass helm" is the colloquial description—featuring inset digital graphs and digital switching. Our test rig featured a 24-inch Garmin MFD that provides navigation and fishing information, engine data, and touchscreen boat controls. A panel with traditional push-button switches to control vital functions is positioned overhead in the T-top as backup, as are Mercury's Vessel View digital gauge and added controls for the Power-Pole shallow-water anchors. The Mercury binnacle control falls easily to hand, and it's flanked by twin cup holders to starboard and the JL Audio stereo and Zip Wake controls to port. A tilt steering helm with stainless-steel steering wheel for the Mercury power-hydraulic-steering system completes the dash. A cubby underneath offers storage for phones, with a built-in wireless charging pad. A two-tier footrest provides choices for the most comfortable piloting position. The leaning post is smartly upholstered and features flip-up bolsters.

On the aft side of the leaning post, Scout has equipped the 261 XSS with a fully aerated livewell, freshwater sink, cutting board, trash can, tackle drawers, cup holders, aft spreader light, aft-facing speakers and a Yeti cooler. The cooler is lit inside for ease of use at night (so cool!). A handrail encircles the leaning post, providing stability for aft-standing riders.

At the stern, there's a large casting deck that converts to three-wide aft seating. Under the starboard-side seat resides a livewell; the center lid hides access to the bilge and all pump, hoses and wiring. The portside seat base hides a second livewell.

The transom shows off Scout's factory rigging prowess, with a standard Bob's Machine Shop 10-inch set-back hydraulic jack plate supporting the big V-10 Mercury outboard. At 26 feet long and capable of 60 mph, the Scout 261 XSS is a formidable angling machine ready to tackle most any water, from backwater bayous to big-water offshore runs. *—John Tiger*

High Points

- ▶ With a sleek appearance and the speed and performance of its double-stepped hull to back it up, the 261 XSS walks the walk.
- ▶ The helm is a master class in "a place for everything, and everything in its place." Controls, touchscreen and steering falls right to hand naturally. Kudos to Scout's ergonomic focus.

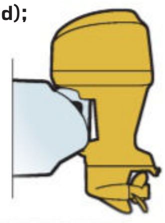
Low Point

- ▶ While the folding stern seats sit flush to the deck when stowed, they could use a bit more padding when open. This would be tough to fit in, but in rough seas, comfort rules.

· **LOA:** 26'0" **BEAM:** 8'6" · **DRAFT:** 1'5" · **DISPLACEMENT:** 4,429 lb. · **TRANSOM DEADRISE:** 15 degrees · **BRIDGE CLEARANCE:** 8'2" · **MAX CABIN HEADROOM:** 5'0" · **FUEL CAPACITY:** 90 gal. · **MAX HORSEPOWER:** 400 · **AVAILABLE POWER:** Single Mercury or Yamaha outboard to 400 hp max

Price (MSRP):
$272,704 **(as tested);**
$190,793 **(base)**

AVAILABLE POWER:
OUTBOARD



HOW WE TESTED

ENGINE: Mercury Verado 400 hp V-10 **DRIVE/PROP:** Outboard/Mercury Revolution X 23-inch pitch 4-blade stainless steel **GEAR RATIO:** 2.08:1 **FUEL LOAD:** 64 gal. **CREW WEIGHT:** 360 lb.

SCOUT BOATS
Summerville, South Carolina; scoutboats.com

C
BOATING
CERTIFIED TEST RESULTS

SPEED			EFFICIENCY					OPERATION	
rpm	knots	mph	gph	naut. mpg	stat. mpg	n. mi. range	s. mi. range	angle	sound level
1000	3.4	3.9	1.8	1.9	2.2	152.5	175.5	3	66
1500	6.2	7.2	3.4	1.8	2.1	148.0	170.3	4	71
2000	8.5	9.8	6.0	1.4	1.6	114.4	131.6	5	75
2500	13.0	15.0	7.9	1.6	1.9	133.6	153.8	6	79
3000	22.2	25.6	9.1	2.4	2.8	198.0	227.9	4	84
3500	28.8	33.2	10.4	2.8	3.2	224.4	258.2	3	85
4000	32.8	37.7	13.0	2.5	2.9	204.1	234.9	3	87
4500	37.7	43.4	15.1	2.5	2.9	202.3	232.8	3	89
5000	42.8	49.3	18.0	2.4	2.7	192.6	221.6	3	90
5500	46.6	53.7	26.7	1.7	2.0	141.4	162.8	2	91
6000	51.0	58.7	33.1	1.5	1.8	124.8	143.6	2	95
6400	54.7	63.0	34.1	1.6	1.8	130.0	149.6	2	95

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SCAN HERE

T

TESTS

#3443

SEA RAY
SDX 250 OB

The SDX 250 Outboard incorporates Sea Ray's new design language, including a defined "jawline," S sheerline, updated logo and a curved windshield. Though no longer blunt, like a traditional deck boat, the bow still offers wraparound seating for a crowd. Add the Comfort Bundle ($2,825, which includes two teak tables and a filler cushion), and the bow becomes a playpen. Get the bow ladder ($385) for beach excursions. The Water System Bundle ($2,850) includes a bow washdown and a transom shower.

A smaller console to port creates storage and gives the co-pilot control of the Fusion stereo. The starboard console features a corner-opening door and a day berth that's perfect for kids to rest and recharge. There's a sink fed by a 12-gallon tank and a pump-out head option ($1,540).

At the helm, our test boat sported dual Simrad 9-inch NSX chart plotters ($4,540). For service, the entire dash hinges open. The skipper sits in a double-wide seat with a convertible backrest like the one to port, so when the key is off, these become aft-facing lounge chair. A big ski locker between the helm seats swallows boards, skis and smaller tubes.

Seating encircles the cockpit. Underfoot, faux-teak SeaDek nonskid comes in the Essentials Bundle ($3,840). The star feature of the deck layout is the stern lounge with its two flip-flop backrests. Underneath is a storage compartment large enough to hold a deflated super tube. Order the compressor ($280) to pump it up.

The SDX 250's standard engine is the Mercury Verado 250 V-8. I recommend the 300 hp Verado upgrade ($3,090, black; $5,310, white) because this boat is meant to carry a crowd. With it, we topped 48 mph. Standard Active Trim optimizes the running angle. The SDX 250's 21 degrees of transom deadrise will help when running on choppy water. The optional Watersports Tower ($11,035) can be upgraded with tilting board racks and can speakers.

The SDX 250 comes in three flavors. The outboard will prove popular in coastal areas, while the sterndrive model will be favored by those who want a larger swim platform. The third is an SDX 250 Surf model with a forward-facing Bravo Four drive and the NextWave system, which allows controlling the surfing wave from the Simrad screen. *—Alan Jones*

To see an online photo gallery of the Sea Ray SDX 250 OB, go to boatingmag.com/3443.

MORE ONLINE

High Points

- The SDX 250 is incredibly maneuverable, easily making hard 180-degree turns in a narrow channel during our test.
- The large sunshade on the watersports tower casts a long, wide swath of UV protection.
- Available with three power choices: outboard, sterndrive, and forward-facing sterndrive for watersports.

Low Points

- We'd have thought this robust hull would be rated for more than 300 hp.
- The large storage compartment under the rear sun lounger shares undivided space with the batteries and fuel tank.

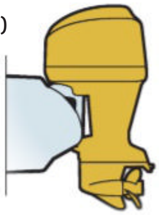
Toughest Competition

- The Hurricane 2600 weighs 1,720 pounds less, can take up to a 400 hp outboard and is yacht-certified. The base price is $130,079 with a Mercury Verado 300.

▪ **LOA:** 27'6" ▪ **BEAM:** 8'6" ▪ **DRAFT (MAX.):** 3'1" (motor down) ▪ **DISPLACEMENT (APPROX.):** 6,090 lb. (with engine) ▪ **TRANSOM DEADRISE:** 21 degrees ▪ **BRIDGE CLEARANCE:** 5'3" (7'10" with optional tower) ▪ **MAX CABIN HEADROOM:** NA ▪ **FUEL CAPACITY:** 75 gal. ▪ **MAX HORSEPOWER:** 300 ▪ **AVAILABLE POWER:** Single Mercury V-8 250 hp Verado or V-8 300 hp Verado

Price: $148,600
(base with test power)

AVAILABLE POWER:
OUTBOARD



HOW WE TESTED

ENGINE: Mercury 300 hp Verado V-8 **DRIVE/PROP:** Outboard/Mercury Revolution 4 14.6" x 17" 4-blade stainless steel **GEAR RATIO:** 1.85:1 **FUEL LOAD:** 55 gal. **WATER ON BOARD:** 0 gal. **CREW WEIGHT:** 380 lb.

SEA RAY BOATS
Knoxville, Tennessee; searay.com

C

BOATING
CERTIFIED
TEST
RESULTS

SPEED			EFFICIENCY					OPERATION	
rpm	knots	mph	gph	naut. mpg	stat. mpg	n. mi. range	s. mi. range	angle	sound level
1000	4.8	5.6	1.2	4.0	4.6	272.5	313.6	0	60
1500	6.3	7.3	2.0	3.2	3.6	212.6	244.7	2	64
2000	7.5	8.7	3.5	2.1	2.5	145.0	166.8	3	65
2500	8.0	9.2	5.0	1.6	1.8	107.9	124.2	4	67
3000	9.6	11.1	7.0	1.4	1.6	92.6	106.6	6	72
3500	15.1	17.4	9.0	1.7	1.9	113.1	130.1	7	74
4000	26.2	30.2	10.4	2.5	2.9	170.3	196.0	6	83
4500	32.0	36.9	14.2	2.3	2.6	152.2	175.2	3	85
5000	36.0	41.5	18.2	2.0	2.3	133.6	153.7	3	86
5500	40.2	46.3	21.0	1.9	2.2	129.2	148.7	3	89
6000	42.4	48.9	22.4	1.9	2.2	127.9	147.2	3	91

MOST ECONOMICAL CRUISING SPEED

PHOTO: COURTESY SEA RAY BOATS

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RANGER
RB210

Ranger Boats has built top-shelf fiberglass bass boats for 60 years and tank-tough aluminum craft for more than 10. The new center-console RB210 bay boat is long and broad but boasts a shallow-draft hull rivaling flats boats while bringing more walk-about stability to anglers.

Its low freeboard eases bringing fish aboard, and its broad 8-foot-2-inch beam provides a safe, confident feeling on the water. The combination of smooth acceleration and crisp turning makes it easy and fun to drive. Ranger names the mechanics and the effect Broad Beam Stability, and it fits.

A Mercury 150 outboard is standard, which we predict would rocket it to 50 mph, but with the Mercury 200 bolted to the transom, top speed is dead-on 60 mph. It rips to 30 mph in just 4.1 seconds and is really on plane the instant the throttle is touched. Its V-bottom pad hull rises out of the water like a performance bass boat. It's thrifty too: Best cruise is at 30 mph and 3,000 rpm, where the big 200 sips 4.9 gph making a heady 6.1 mpg. If the 40-gallon tank is filled, it'll take almost 220 miles to empty it, leaving 10 percent in reserve.

Ranger designed the pad-V hull to float and plane in very shallow water, so the boat can shine fishing the flats and bayous. It's also a quiet performer; the foam-filled all-welded hull deadens sound and makes for a solid, rattle-free ride.

The deck layout is purpose-driven. The bow casting deck is dominated by the Minn Kota trolling motor and loads of storage, with twin rod lockers flanking center storage compartments and a recirculating aerated livewell just forward of the step down into the cockpit. The captain steers with hydraulic steering and monitors performance with the standard Ranger System Monitor 7-inch touchscreen display. A Lowrance Eagle 7 graph is standard atop the console.

An upholstered padded leaning post is comfortable yet firm, and it tilts forward to provide access to the livewell. Situated to port and starboard are twin folding jump seats that hide more dry storage underneath; when stowed, the backs of these seats serve to complete the aft casting deck. They flank a 25-gallon aerated livewell. And for long-term easy maintenance, a large bilge hatch provides generous access to the fuel tank and transom rigging. *—John Tiger*

To see our video review of the Ranger RB210, go to boatingmag.com/3444.
MORE ONLINE

High Points

- Rawhide coating—similar to spray-on truck bed liner—on gunwales and throughout the interior provides a tough, lasting finish.
- Foam-filled, all-welded hull provides a smooth, quiet ride.
- A trailer weight of less than 4,000 pounds makes it easy to tow behind most midsize SUVs and trucks.

Low Point

- Though maximum capacity is listed as five, its layout is best-suited for two anglers. Adding more crew means utilizing the aft jump seats, positioned low and to the port and starboard of the leaning post.

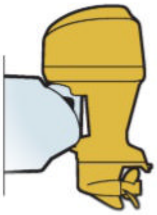
Toughest Competitor

- Crestliner's 2000 Bay measures 20 feet, 5 inches in length and 8 feet wide, maxes out with 150 hp, and has a 32-gallon fuel tank. Packaged with a trailer and some options, pricing is in the $50,000 range comparably equipped.

· **LOA:** 21'10" · **BEAM:** 8'2" · **DRAFT:** 1'1" · **DISPLACEMENT:** 2,370 lb. (without engine) · **TRANSOM DEADRISE:** NA · **FUEL CAPACITY:** 40 gal. · **MAX HORSEPOWER:** 200 · **AVAILABLE POWER:** Mercury outboards to 200

Price: $58,465
(as tested)

AVAILABLE POWER:
OUTBOARD



HOW WE TESTED

ENGINE: Mercury 200 FourStroke **DRIVE/PROP:** Outboard/Mercury Tempest 14.6" x 22" 3-blade stainless steel **GEAR RATIO:** 1.85:1 **FUEL LOAD:** 40 gal. **CREW WEIGHT:** 250 lb.

RANGER BOATS
Flippin, Arkansas; rangerboats.com

C
BOATING
CERTIFIED
TEST
RESULTS

SPEED			EFFICIENCY					OPERATION	
rpm	knots	mph	gph	naut. mpg	stat. mpg	n. mi. range	s. mi. range	angle	sound level
1000	4.5	5.2	1.3	3.5	4.0	125.1	144.0	2	65
1500	6.6	7.6	2.3	2.9	3.3	103.4	119.0	3	70
2000	11.4	13.2	3.4	3.4	3.9	121.0	139.2	5	74
2500	19.3	22.3	3.9	5.0	5.7	178.5	205.4	2	77
3000	26.2	30.1	4.9	5.3	6.1	192.2	221.1	1	78
3500	31.6	36.4	6.7	4.7	5.4	169.7	195.3	1	82
4000	35.5	40.9	8.2	4.3	5.0	155.8	179.3	1	85
4500	40.8	47.0	10.8	3.8	4.4	136.1	156.7	1	89
5000	44.6	51.4	12.4	3.6	4.1	129.5	149.1	1	93
5500	49.7	57.3	16.3	3.1	3.5	109.9	126.4	0	94
6000	52.1	60.0	19.4	2.7	3.1	96.7	111.2	0	95

MOST ECONOMICAL CRUISING SPEED

PHOTO: COURTESY RANGER BOATS

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MAKO 18 Pro Skiff Backwater Edition

The newly redesigned Mako 18 Pro Skiff Backwater Edition is a light-tackle angler's dream. It's a skinny-water boat that's packed with standard features that will help you find and chase fish.

Running with two aboard and a 22-gallon fuel load, we pushed the 18 Pro Skiff to 52 mph, reaching 30 mph from idle in 5.8 seconds. For a relatively flat-bottomed boat, it held true in hard-over turns at planing speeds, never slipping or blowing out the prop. It climbed onto plane in 2.4 seconds. The standard jack plate lets you raise or lower the engine's running height to keep on plane in skinnier water. With a draft of just 12 inches, you can get shallow and deploy the standard Minn Kota Terrova electric trolling motor and maneuver to find the fish. Also, you can stake out in waters up to 8 feet deep with a standard Power-Pole Pro Series II.

Some of the performance attributes can be credited to this boat's construction. Mako builds a closed-cavity foam-filled hull that's bonded together right in the mold. It's rugged and durable, but it doesn't need a stringer system, which helps it shed weight to float in shallower water. Mako's Rapid Planing System design creates a little pocket in the running surface at the transom that allows water to flow to the prop no matter how high you raise the jack plate. Mako installs a tube in the bilge that flows air into the pocket to ventilate it and enhance the flow.

What about the fishing features? The spacious bow and stern casting platforms feature camo decking for comfort underfoot. Fold-down cleats minimize line snags. A 26-gallon livewell resides in the aft deck, with a second 7-gallon well under the seat forward of the console. Three vertical rod holders line each side of the console, as well as three undergunwale rod racks per side that are long enough to stow fly rods. There are two more vertical holders in the removable helm bench backrest.

Besides being a fishing machine, this boat just looks cool. Its army-green hull with Mako Sand accents and camo decking stand out at the ramp and help it hide in the mangroves. The scalloped hullsides above the waterline are a nod to the sleek profile of a real mako shark. *—Pete McDonald*

To see our video review of the Mako 18 Pro Skiff Backwater Edition, visit boatingmag.com/3445. **MORE ONLINE**

High Points

- ▶ Standard jack plate, Power-Pole and Minn Kota Terrova trolling motor make this boat ready for skinny-water duty. Scalloped hullsides are inspired by a real-life profile of a mako shark.
- ▶ Standard Wet Sounds stereo with four speakers lets you pump up the jams.
- ▶ Trailer comes standard, so you can head straight to the launch ramp.

Low Points

- ▶ You can pole it in skinny water, but it's best-suited for trolling-motor duty.
- ▶ Could use grab handles near the aft jump seats.

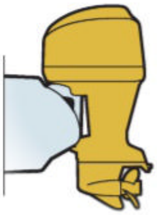
Toughest Competitor

- ▶ The Maverick HPX-V is more of a true poling skiff that's lighter and has a shallower draft, but the price jumps significantly to $84,088 with a Yamaha 150.

· **LOA:** 18'6" · **BEAM:** 7'10" · **DRAFT:** 1'0" · **DISPLACEMENT:** 1,740 lb. · **TRANSOM DEADRISE:** 13 degrees · **BRIDGE CLEARANCE:** 6'0" · **FUEL CAPACITY:** 37 gal. · **WATER CAPACITY:** 0 gal. · **MAX HORSEPOWER:** 175 · **AVAILABLE POWER:** Single Mercury outboards to 175 hp

Price: $63,995
(as tested)

AVAILABLE POWER:
OUTBOARD



HOW WE TESTED

ENGINE: Mercury 175 Pro XS outboard **DRIVE/PROP:** Outboard/Mercury Tempest 14½" x 19" 3-blade stainless steel **GEAR RATIO:** 1.85:1 **FUEL LOAD:** 22 gal. **CREW WEIGHT:** 400 lb.

MAKO BOATS
makoboats.com

C
BOATING
CERTIFIED
TEST
RESULTS

SPEED			EFFICIENCY					OPERATION	
rpm	knots	mph	gph	naut. mpg	stat. mpg	n. mi. range	s. mi. range	angle	sound level
1000	3.48	4.00	1.10	3.16	3.64	105	121	1	63
1500	4.34	5.00	1.90	2.29	2.63	76	88	1	66
2000	5.21	6.00	3.20	1.63	1.88	54	62	3	71
2500	15.64	18.00	3.40	4.60	5.29	153	176	6	77
3000	22.59	26.00	4.20	5.38	6.19	179	206	4	83
3500	26.94	31.00	6.20	4.34	5.00	145	167	3	85
4000	31.28	36.00	6.40	4.89	5.63	163	187	2	90
4500	33.89	39.00	8.20	4.13	4.76	138	158	1	91
5000	38.23	44.00	13.50	2.83	3.26	94	109	1	93
5500	42.58	49.00	14.40	2.96	3.40	98	113	1	95
6000	45.19	52.00	16.20	2.79	3.21	93	107	1	86

MOST ECONOMICAL CRUISING SPEED

PHOTOS: COURTESY MAKO BOATS

Welcome home.
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YACHT CLUB
NORTH SOUND, VIRGIN GORDA

By
Charles Plueddeman

HIGHFIELD
FLUX MARINE
FLUX

FLUX MARINE

Engineering an electric outboard that’s innovative but familiar.

Flux Marine co-founders Ben Sorkin, Daylin Frantin and Jon Lord say that they began developing an electric outboard motor in a garage. That’s a startup plan that worked out for Bill Harley and Arthur Davidson, and famously for Bill Hewlett and David Packard. It’s too early to tell if Flux Marine will scale similar heights of market success, but after 10 years of research and development and a claimed investment of $30 million, the founding trio has expanded to 50 employees, the garage has been replaced with a 40,000-square-foot manufacturing facility in Bristol, Rhode Island, and the sleek and sophisticated Flux Marine electric outboard is in production.

Sorkin started tinkering with electric power for small hydroplane boats while studying mechanical and aerospace engineering at Princeton University, from which he graduated in 2017. He spent time at Tesla and designing electric propulsion systems for the office of Naval Research before devoting his full attention to the startup.

“The idea behind Flux Marine was that there has to be a better, more-sustainable way to power a boat. We are not trying to do something so radically different that it alienates people,” Sorkin says. “We are trying to do something that evokes excitement and offers innovation but still makes you feel comfortable with what’s powering your boat.”

The Flux Marine outboard went into production in late 2024, and the company is currently providing an OEM propulsion system for the Scout 215 Dorado, the Scout 215 XSF and the Highfield Sport 660. The company also offers the Flux outboard paired with a 24-foot pontoon it sells directly.

Every component of the Flux Marine outboard was designed in-house, according to Sorkin, in an effort to optimize affordability, safety and performance. Sorkin reveals that the system underwent field testing aboard boats from 2022 to 2024, and recently survived 1,300 hours at wide-open throttle in a test tank, with no maintenance issues. The production motors and battery system are all assembled by Flux. A five-year standard warranty covers the Flux drivetrain and the

PHOTOS: COURTESY FLUX MARINE

SPEED			EFFICIENCY			OPERATION	
rpm	knots	mph	power draw (kW)	n. mi. range	s. mi. range	angle	sound level
1000	4.3	5.0	4.2	87	100	1	62
1500	6.1	7.0	12	43	49	4	68
2000	7.8	9.0	27	24	28	6	73
2500	11.3	13.0	42	23	26	7	78
3000	18.2	21.0	56	28	32	6	82
3500	23.5	27.0	66	30	34	4	83
3700	26.9	31.0	84	27	31	3	85

battery pack that powers it.

The outboard is rated at 100 hp sustained and, for bursts of acceleration, 150 peak horsepower. It weighs about 325 pounds. Energy is provided by a modular system comprised of three 400-volt 28 kWh batteries, for a total of 84 kWh of storage. Each battery weighs 325 pounds, so the entire system weighs roughly 1,300 pounds. By comparison, it's about 750 pounds for a 150 hp internal combustion motor, 37 gallons of gas in the Highfield 660, plus a starting and house battery. The charging port below a hatch in the cowl accepts a Level 1, Level 2 or Level 3 connection, so when trailered, it can be plugged into an EV-charging station.

Because it is always working under heavy load when pushing a boat—just as an internal combustion engine must—cooling the motor and inverter is a challenge for an electric motor. Flux was determined to design a cooling system that does not rely on seawater, and so created a system that circulates a glycol solution around the motor and inverter and through passages in the aluminum antiventilation plate, which acts as a heat exchanger. This completely closed system does not require maintenance or winterization. There is no need to flush the motor internally after use in salt water, but an exterior wash with fresh water would be advised, as with any outboard.

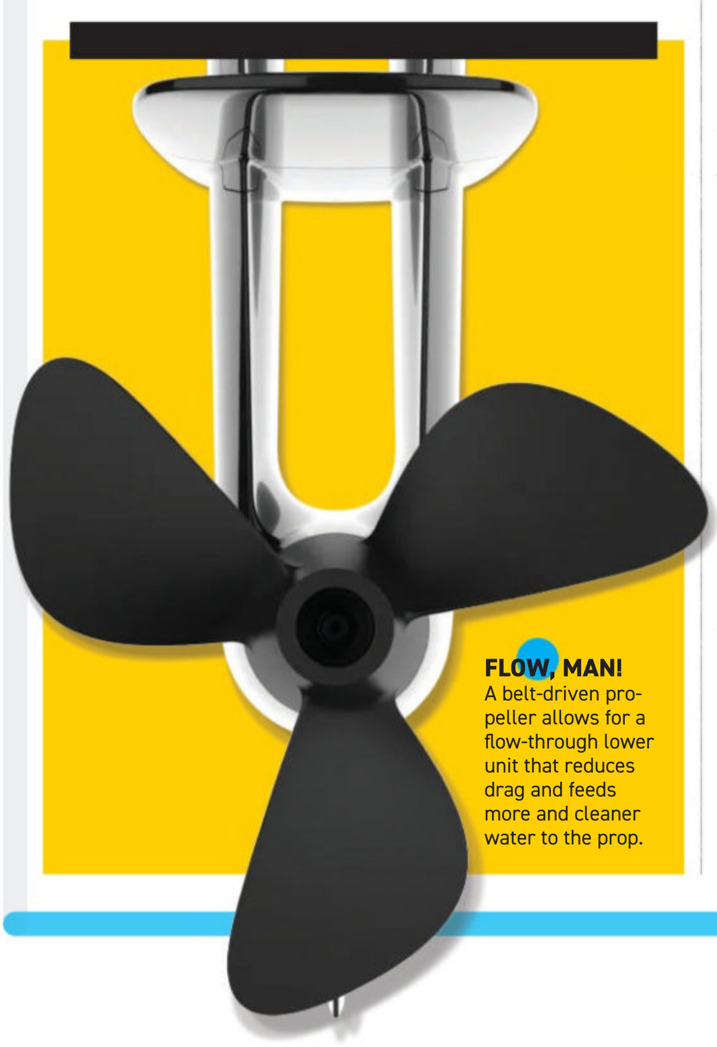
Another compelling design element of the Flux outboard is its midsection and lower unit. Because the outboard does not need an exhaust outlet or forward/reverse gears, the Flux team was able to reimagine transfer of power from the motor to the propeller. Flux drives the prop with a 4-inch-wide synchronous belt. The typical midsection is replaced with a "dual strut" design that surrounds the belt but is open in the center. This both reduces drag and improves water flow to the propeller.

The Flux outboard powered a 21-foot-10-inch Highfield 660 Sport—a RIB with an aluminum hull—for our short test runs in Michigan. The motor propelled this very light boat from zero to 30 mph in 8.1 seconds, en route to reaching a top speed of 31 mph. The boat heeled over on its inside tube and carved neat turns, and the prop stayed hooked up. The motor would tilt out of the water. Cruising at 21 mph, the display indicated a range of 32 miles while drawing 56 kW, or about 1.5 hours of use. The controls are smooth, and the motor is essentially silent.

This fits the use case of Steve Eddleston, owner of the historic 12-Metre racing yacht *Weatherly*, berthed in Newport, Rhode Island. Eddleston purchased a Flux-powered Highfield 660 as a tender to commute a 25-mile round trip by water from Bristol to Newport.

"I hate fumes and pollution," Eddleston says. "This boat has the range I need, great stability and handling with the battery weight low and forward, and I can bump right up to *Weatherly*. I return to dock in the evening and plug into shore power, and it charges overnight. No gas dock. It's harmonious with my life."

The Flux-powered Highfield 660 has an MSRP of $110,000, compared with about $83,000 with a 150 hp gas outboard. It will be fun to see how far the young entrepreneurs at Flux can fly.



FLOW, MAN! A belt-driven propeller allows for a flow-through lower unit that reduces drag and feeds more and cleaner water to the prop.

PHOTOS: COURTESY FLUX MARINE

SPLIT DECISION

PHOTO: COURTESY GRUNDENS

ELECTRONICS MAKE ME SAFER

The correct array of marine electronics can keep you and your crew safe, no matter the conditions.

BY JIM HENDRICKS

They had guts, those great mariners from the Age of Discovery. Though some are viewed today with a degree of controversy, the likes of Columbus, Vespucci, Cortés and Magellan still hold reputations as bastions of courage and exploration.

How they did it—setting out on uncharted waters aboard creaking wooden sailing vessels, minds abuzz with apprehension of what might lie ahead, suppressing the lingering fear that they might never see land again—will always fascinate me.

Few of us today will ever experience anything approaching that level of long-term anxiety afloat, thanks in large measure to today's sophisticated marine electronics. They can tell you where you are, where you're going, when you'll get there, what's lies underwater, what might get in your way, and where and when storms might strike. Today's marine electronics can also recognize and route you around obstacles, and even drive the boat for you.

Most importantly, when used properly by experienced captains, electronics can make you safer. Of course, electronics do not negate

Raymarine
FLIR
FLI

HEAT OF THE NIGHT A marine thermal-imaging system such as FLIR picks up the heat signature of objects and depicts them on a multifunction display to help you track and avoid them in the dark.

PHOTOS: (FROM TOP) COURTESY RAYMARINE, JIM HENDRICKS

the need for prudent seamanship. You still must stay alert and be aware of your surroundings, remain at the wheel, and maintain a lookout and safe speed. But electronics can complement your seamanship skills, particularly in challenging conditions.

One important caveat: Don't wait until things take a turn for the worse to learn your electronics. Using your devices and interpreting displays should become second nature. This calls for practice and regular refresher sessions when conditions are pleasant to help ensure that you're ready to effectively use and have confidence in the technology when the real need arises, as described in these five challenging situations in which marine electronics allowed me to pilot the boat with greater safely.

MOONLESS PASSAGE

Recommended electronics: radar with MARPA, chart plotter, AIS, night-vision or thermal-imaging camera

You can often prepare yourself for a long nighttime cruise in advance, as I did recently while running 35 miles offshore in the predawn hours for a day of mahi fishing off the coast of Southern California.

Before leaving the dock, I took the time to make sure that the electronics I had planned to use—radar, chart plotter, AIS and night-vision camera—were functioning properly. You might use instead a thermal-imaging camera from a company such as FLIR, but in this case, I relied on my SiOnyx Nightwave system, which shows the water and objects ahead in a full-color, stable and daylike image on my multifunction display.

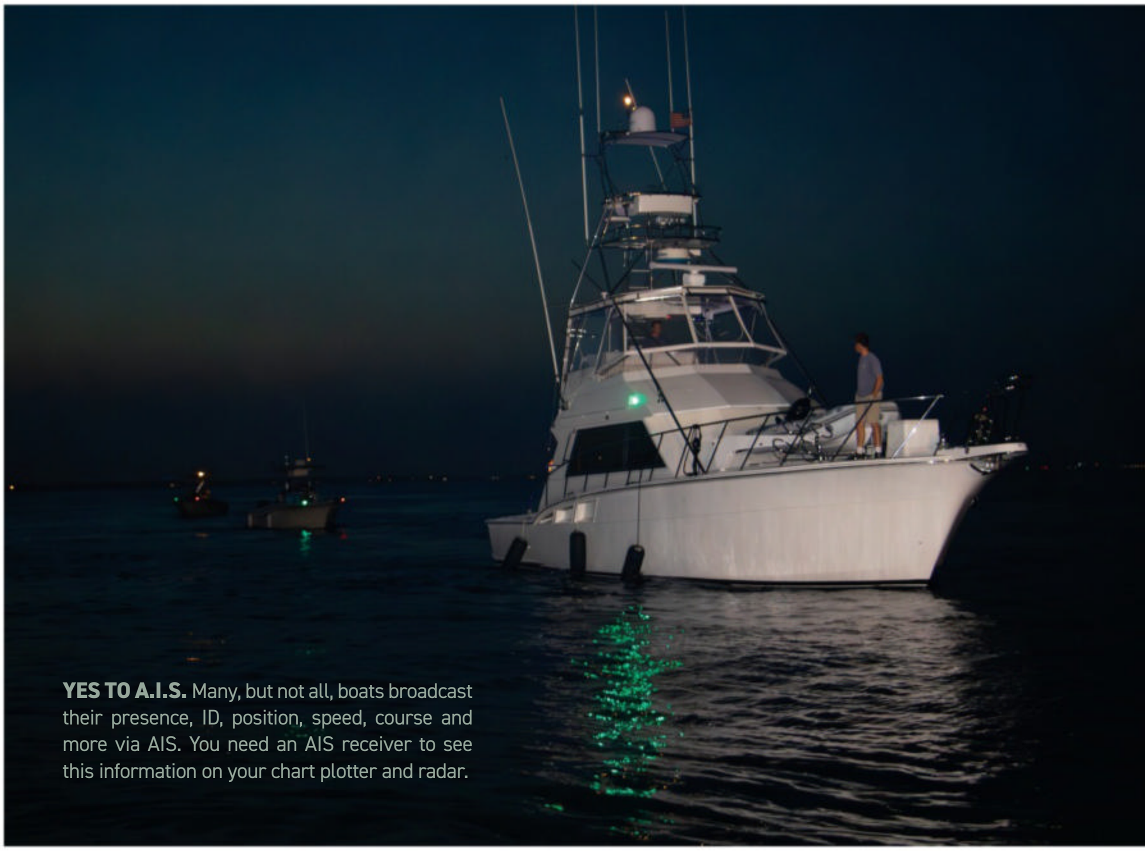
Why, you might ask, would I want night vision when I have radar, or vice versa? For me, it boils down to detecting high-profile hazards with radar, while also seeing low-lying objects that radar can't detect such as lobster-pot buoys or flotsam such as wood pallets and timbers.

My Mini Automatic Radar Plotting Aid allows me to automatically track targets on my radar to determine their threat level, course, closest point of approach, and time of closest approach.

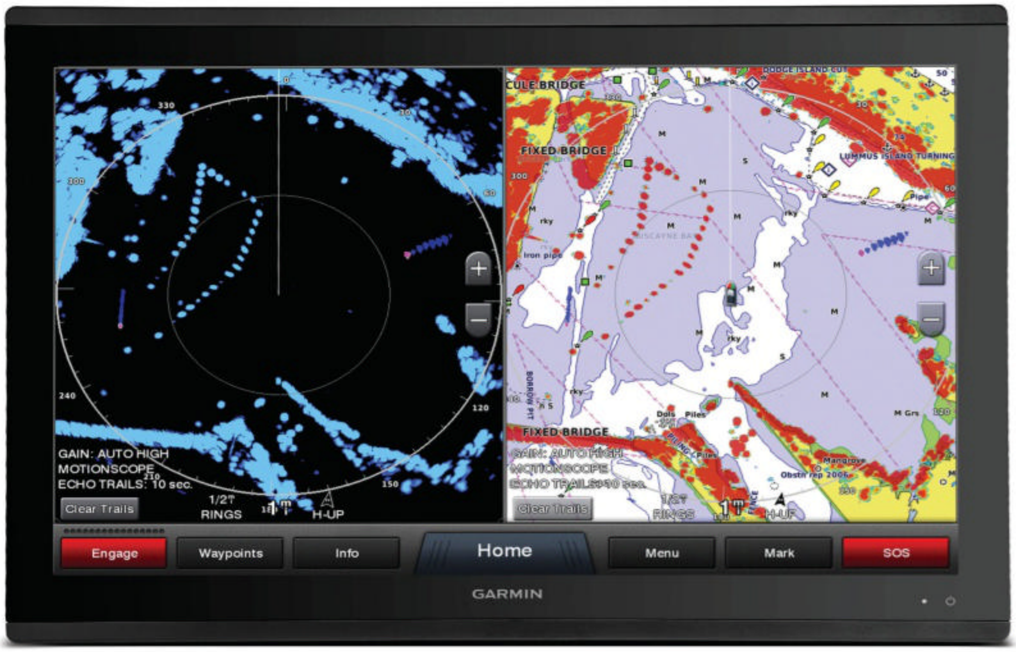
Some radar systems, such as those from Furuno, Garmin and Simrad, make tracking targets even easier with Doppler technology, which senses the relative motion of returns. Furuno's Target Analyzer system, for example, automatically changes the color of targets to help you identify when they are hazardous. Green echoes are targets that stay stationary or are moving away from you, while red echoes are hazardous targets that are moving toward your vessel. Echoes dynamically change colors as targets approach or get farther away from your vessel.

An Automatic Identification System offers some redundancy, showing vessels equipped with AIS and confirming their location and identity on both the chart plotter and radar. However, many boats do not broadcast AIS signals, and so I use it only to augment but not replace radar.

My chart plotter provides me



YES TO A.I.S. Many, but not all, boats broadcast their presence, ID, position, speed, course and more via AIS. You need an AIS receiver to see this information on your chart plotter and radar.



OVERLAY LOGIC With the addition of an electronic compass, you can overlay radar on a chart for greater situational awareness in fog.

with the course and distance to my destination, as well as my current position, offering a sense of place, which I might otherwise lose on a moonless night.

One important tip for using your electronics at night: Dim the screens or use night mode to help preserve your night vision. Bright displays destroy my primary nighttime navigational tool: my vision.

POOF! IT'S FOGGY!

Recommended electronics: radar with MARPA, chart plotter, AIS, autopilot, VHF with PA function and loudspeaker

I tend to avoid boating in fog, but at least once a season, I get caught as pea soup sweeps quickly across coastal waters. When it happens after dark, it tests my navigational skills like no other condition. Without the right electronics, it can leave boaters wondering whether to try to make safe harbor or stay put. Either choice can turn into catastrophe.

The problem I have with thick fog is its disorienting nature. Without the ability to see my surroundings, I can't stay on a prescribed course. Try it sometime. Even with a good compass, you will drift off course more quickly than you can imagine, then meander endlessly as you seek to correct, and then overcorrect. That's why I added autopilot to my list of recommended electronics. It keeps me on course while I use essentially the same electronics in much the same way I use them for nighttime navigation.

Another additional piece of electronics is a VHF radio with (and this is important) a PA function wired to a loudspeaker. As part of the PA feature, some VHFs, such as the Standard Horizon Matrix, have a foghorn function, and it can set for underway or at anchor. While underway, it emits a loud, prolonged blast at 2-minute intervals. In anchor mode, the foghorn signal repeats every minute.

This not only alerts other boats in the vicinity to my presence, but the PA system also has a listen-back feature that helps me hear the sound of other boats approaching my position, so I can prepare to take evasive action if necessary to avoid a collision.

18.4ft
58.01
Standby
Midnight June - Catch Me There
GARMIN
SOS
Toolbars
Options

DIVIDE AND CONQUER Splitting a multifunction display into as many as four panes lets you monitor multiple navigational safety systems and identify potential hazards at a glance.

PHOTOS: COURTESY GARMIN (2)

ICOM
VHF MARINE IC-M330
25W USA
STBY
25°48N
80°12W
12:00
16
SCAN
DW
CH/WX
HI/LO
DISTRESS
CH
ENT
MENU
CLR
16/C
GARMIN

OVER THE AIR In addition to its communications value, a VHF radio (on left) with an automatic foghorn can alert other boaters to your presence when proceeding in low visibility. A radar (on right) proves indispensable in avoiding major obstacles such as other vessels and structural hazards when visibility is limited.

SHALLOW THREATS

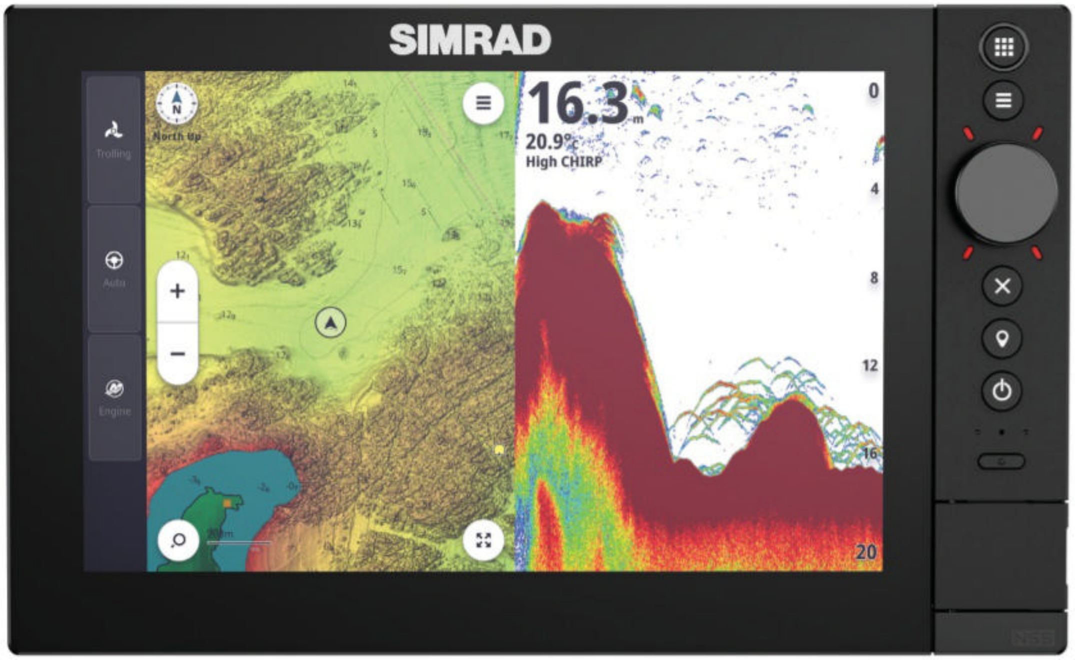
Recommended electronics: chart plotter with auto-routing, electronic chart app, echo sounder

The ocean floor is dynamic, especially in shallow nearshore waters where powerful storms, waves and currents shove about bottom mud and sand, unexpectedly piling up shoals. These can catch even local veteran boaters by surprise, especially after a big storm. It happened to me a few years ago when the north side of the main channel at the mouth of the Los Angeles River silted up after a winter storm. Fortunately, my boat did not fetch up, but I did drag the lower unit through the mud for about 50 yards. These days, I stay up to speed on silting with the Navionics Boating app on my mobile phone.

In addition to US government National Oceanic and Atmospheric Administration charts, the Navionics app includes a layer of crowdsourced updates from others boaters. When this layer is switched on, it provides updates from other boaters on subjects such as new shoal areas that might not yet have made it into the official chart update, as well as points of interest and navigation aids. The app also integrates information shared by the ActiveCaptain Community, including navigational hazards.

In addition, I have discovered that a chart plotter with auto-routing, as featured on the new Simrad NSS 4 series, can quickly guide me around dangerous shoals and reefs, as well as other hazards. I just plug in my destination as a waypoint, and the system redraws the safest way to get there via a series of waypoints.

Sometimes you just have to slow down and feel your way, especially when navigating backwaters and rivers. That's when an echo sounder is helpful. I watch the depth carefully to make sure I am in the deepest part of the channel. If the bottom starts to come up, either I change course or reverse out and try another path.



BOTTOM LINE A chart plotter with a detailed and up-to-date electronic chart coupled with an echo sounder (aka fish finder) can help you safely steer clear of shallow reefs and shoals. Split-screen mode lets you view both at once.

FIRST-TIME VISIT

Recommended electronics: radar, chart plotter with satellite overlay and tide chart, VHF radio

Occasionally I will venture to new waters north or south of my home port of Long Beach, California, and I sometimes find entering and negotiating a new inlet and port—particularly a large one—somewhat challenging.

I have discovered that radar and a chart plotter—used side by side or as a radar chart overlay—gives me a good idea of how to safely enter the inlet, particularly at night. During the day, when I can see clearly, I sometimes use the 3D feature in course-up mode. Rather than viewing the chart from overhead, this lays out the inlet channel like a highway and can prove intuitive to read, providing greater navigational safety.

Another helpful feature on the chart plotter is the satellite mode that overlays satellite imagery and can show helpful landmarks when exploring new ports. You can zoom in for more detail or zoom out to gain greater context with any of these views.

Standing off and hailing the port master or harbor patrol on the VHF radio is a good idea if you're unsure about the safety of an inlet. Such was the case on one spring day as I considered entering California's Oceanside Harbor, which tends to shoal at its mouth. During low tide, big

PHOTOS: (CLOCKWISE FROM TOP LEFT) COURTESY ICOM AMERICA, COURTESY GARMIN, COURTESY SIMRAD

Pacific swells rise up and crest at this inlet. More than one vessel has met its demise here.

I called the harbor patrol on VHF Channel 16, and we switched to talk on Channel 22a. The harbor patrol advised me to hold off until the tide rose, so I checked the tide chart on my chart plotter, which indicated high tide later in the afternoon. I waited until then and found a much safer passage into the harbor.

ESCAPING THE STORM

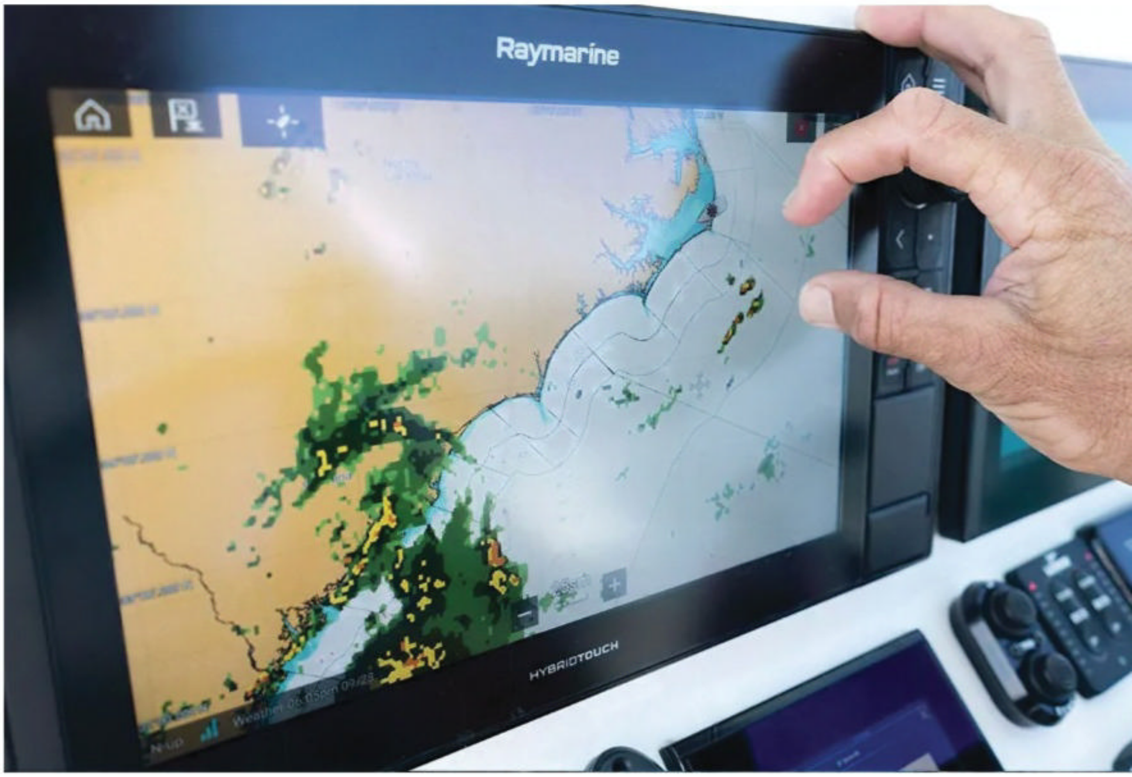
Recommended electronics: chart plotter with SiriusXM Marine, radar, VHF radio

A day of fishing off Key West, Florida, started bright, clear and hot. But by early afternoon, a line of anvil-shaped clouds and an occasional muted boom of thunder in the distance gave me pause for concern.

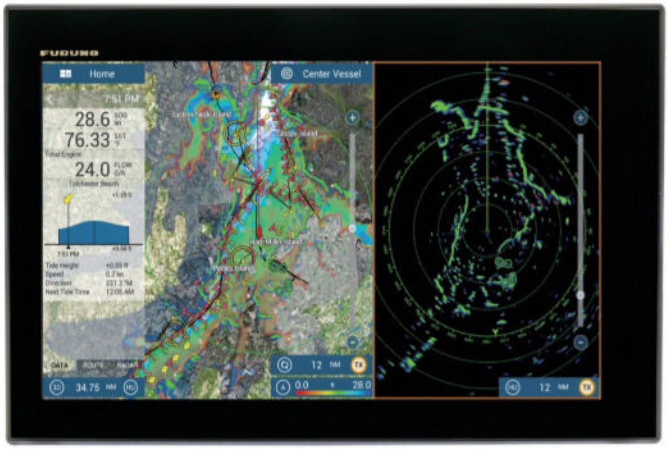
Fortunately for us, we had the SiriusXM Marine Offshore overlay feature on our chart plotter. With it, we could see on the display a line of major thunderstorms taking shape and tracking quickly in our direction. The SiriusXM Marine Offshore also showed a growing number of cloud-to-ground lightning strikes, accompanied by high winds and waves.

A severe-weather warning from the Coast Guard on the VHF radio confirmed the reports, as did our radar, which picked up the returns of heavy rain in the distance. The fishing had been good, but thanks to our marine electronics, we knew for safety's sake that the time had come to head back to port.

As we raced ahead of the tempest, I thought of the great mariners from the Age of Discovery and wondered if they could have imagined the tools that everyday boaters like me now have to stay safe. I doubt it. But then, I have little idea what new electronic devices the next season might bring and how they might help me stay even safer.



STORM TRACKER In regions where severe weather develops suddenly, a subscription to SiriusXM Marine's satellite service, which overlays weather radar on an electronic chart, can help you avoid dangerous thunderstorms.



IMAGES FROM SPACE A chart plotter with a satellite image overlay offers more detail and greater context for safer navigation on unfamiliar waters.

WHEN THINGS GO SOUTH

Recommended electronics:
VHF radio with DSC, EPIRB, PLB

When things go wrong, putting you and your crew in danger, marine electronics can save lives. One of best devices is a fixed-mounted VHF radio. All new models today feature digital selective calling. Among its features is the ability to push one button to automatically alert the Coast Guard and other rescue agencies, as well as other boaters in the area, to your emergency and provide your GPS coordinates.

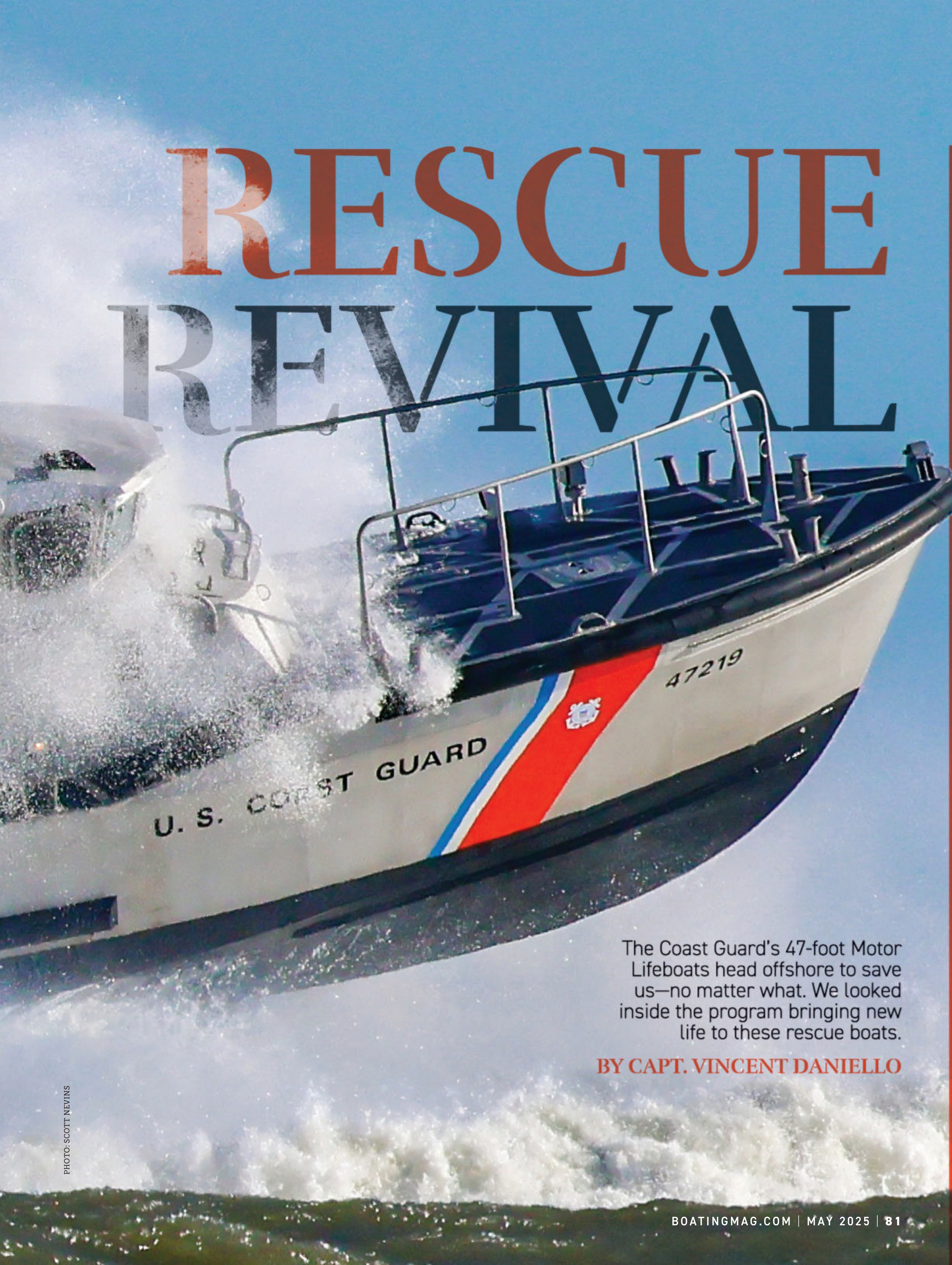
To make it truly effective, you must obtain a Mobile Maritime Service Identity. Visit the BoatUS or Sea Tow website to obtain this number. You can then register your DSC-equipped VHF. Your owner's manual can take you through the steps to set up your particular radio, which might include networking with a GPS, though some VHFs now have integrated GPS.

Emergency position-indicating radio beacons and/or personal location beacons are also good ideas. Should your vessel founder, forcing crew overboard, activating these beacons alerts the Coast Guard and other responders via satellite links, and transmits your GPS position. Some PLBs now also broadcast AIS as a secondary positioning source, one that allows other boaters with AIS receivers to lend a hand.

GLOBALFIX V5
AIS + RLS CAPABLE
ACR

PHOTOS: (CLOCKWISE FROM TOP RIGHT) COURTESY SIRIUSXM MARINE, COURTESY ACR, COURTESY FURUNO

TESTING METTLE Crews from US Coast Guard Station Barnegat Light train in surf aboard newly refit 47-foot Motor Lifeboats.

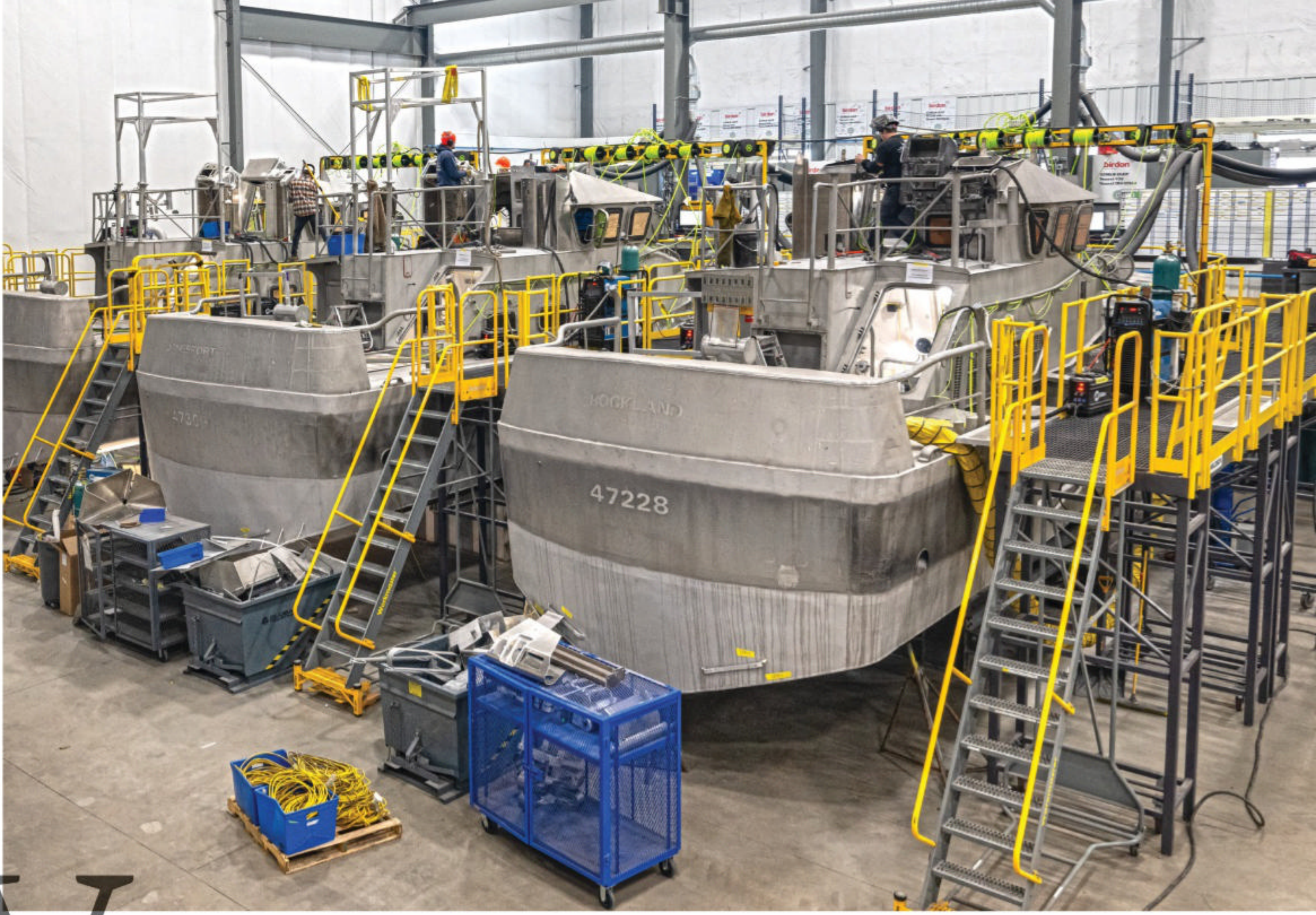


RESCUE REVIVAL

The Coast Guard's 47-foot Motor Lifeboats head offshore to save us—no matter what. We looked inside the program bringing new life to these rescue boats.

BY CAPT. VINCENT DANIELLO

PHOTO: SCOTT NEVINS



While Coast Guard air crews often grab headlines, sometimes flying hundreds of miles offshore into unimaginable conditions to save mariners in peril, boaters in trouble closer to the coast are more likely to have a Coast Guard vessel come alongside. That's true even in extremely gnarly conditions. Crews aboard the 47-foot Motor Lifeboat, the Coast Guard's primary nearshore fast-response rescue platform, will head into 50-knot winds through 30-foot seas and traverse inlets with 20-foot breaking surf.

These venerable boats first went into service in the late 1990s, replacing the 44 MLB. As they exceed their anticipated service life, the Coast Guard has turned to Birdon, a global maritime and defense contractor, to complete a fleetwide $191 million Service Life Extension Program. *Boating* went behind the scenes to see firsthand how these revitalized vessels give their Coast Guard crews improved tools for saving lives.

RESCUE MACHINES

"When you're inbound with a boat in tow, against an ebb current, in 24-foot seas, it shows that these boats are highly capable of their mission," says Chief Petty Officer Matthew Whitlow, who has served aboard a 47 Motor Lifeboat since 2014. That includes four years in the notorious Columbia River entrance as an instructor at National Motor Lifeboat School at Cape Disappointment, Washington. "I've never doubted that this boat would take care of us." What gives him that confidence? The 47 MLB is designed to capsize on its side or pitchpole end-over-end, even rolling all the way through 360 degrees, then return upright within 12 seconds and continue on its mission. I've quipped, in particularly rough seas, about being in Mother Ocean's washing machine, but these men and women are ready, able and fully equipped for spin cycle.

Once on-scene, Coast Guard crews deploy dewatering pumps, damage control kits and firefighting capabilities. Often, just towing a disabled boat stabilizes or remedies perilous situations. The 47 MLB can stay offshore

SPEEDY DELIVERY In Birdon's new building on the Connecticut River, workers refit about eight boats at once, and each boat takes around eight months to complete.

PHOTOS: CAPT. VINCENT DANIELLO

47225
U.S. COAST GUARD

for many hours, follow stricken vessels back to port, and carry as many as 34 survivors and crew—all far surpassing rescue-helicopter limits.

PROJECT SCOPE

At Birdon's Portland, Connecticut, facility, six indoor service bays accommodate technicians installing new diesels, upgrading electronics, reconfiguring the open bridge and engine room, and welding in entire sections of aluminum. In other buildings, additional boats are disassembled and media-blasted inside and out to bare aluminum. Since the project began in 2019, the company has completed 27 boats. Two facilities, in Connecticut and also Bellingham, Washington, will refit about 20 boats in 2025, and Birdon is on track and within budget toward a final fleet of 107 refit 47 MLBs by 2029. (Another 10 boats in the Coast Guard's current 117-boat fleet may be scrapped or refit in the end.)

What those metrics don't reflect, though, is Birdon's focus on the mission of these boats—protecting Coast Guard crews while rescuing boaters already in serious peril. That starts with ensuring rollover survivability even when two new Cummins diesel engines offer 880 pounds less ballast than the Detroit Diesels they replace. Steel ballast low in the engine room and forward compartment compensates for that change, and completed boats are weighed, both upright and inclined through 14 degrees in a hydraulic cradle, to verify their stability. Each of the 4,000 parts replaced, as well as the few dozen retained items, are all inspected at least three times: before, during and after installation. Sea trials by both Birdon and the Coast Guard replicate operating parameters right down to crew weight simulated with water tanks belted into the seats.

ENGINES AND PERFORMANCE

While Cummins' 530 hp QSC 8.3-liter diesels are 20 percent lighter and make 20 percent more horsepower than the original 435 hp Detroit Diesel 6V92 engines, the added weight of sound-mitigating and climate-stabilizing insulation, a reconfigured bridge, and the ballast needed for this boat's unique seaworthiness net only about 2 knots faster speed overall. Fuel burned at the end of a typical day is about the same with the new engines as with the old motors.

Those Detroit Diesels are older than many of the Coast Guard engineers working on them, and it shows. "When we go out and the boat isn't making full power [with Detroit Diesels], we have to check fuel pressure, look for air restrictions, check the valve clearances, maybe replace fuel injectors, or remove and clean the aftercooler," says Chief Petty Officer Lantz Fortner, who has been an engineer aboard 47 MLBs since 2014. "The Cummins engines have a lot less unscheduled downtime and a lot less troubleshooting."

While the new Cummins are off-the-shelf, the controls aren't. Cummins partnered with Glendinning Products, a leader in marine engine controls for five decades, to ensure that shift and throttle controls are waterproof to International Electrotechnical Commission Standard IP67 (submerged 1 meter for 30 minutes). The incorporated Rollover

PLENTIFUL POWER New Cummins diesels are 20 percent lighter and make 20 percent more horsepower than the Detroit Diesels they replace.

PHOTO: CAPT. VINCENT DANIELLO

SPECS (FROM USCG 47 MLB OPERATOR'S MANUAL)

· **LOA:** 48'11" (with rub rails) · **BEAM OVERALL:** 15'0" (with rub rails) · **DISPLACEMENT:** 40,000 lb. (boat, full fuel, outfit; no crew or cargo) · **FREEBOARD BOW:** 6'8" · **FREEBOARD AMIDSHIPS DECK RECESS:** 2'2" · **FREEBOARD AFT:** 7'1" · **DRAFT:** 4'6" · **OVERHEAD CLEARANCE:** 18'6" · **FUEL CAPACITY:** 394 gal. (they fill only to 95 percent, which is 373 gal.) · **POTABLE WATER CAPACITY:** 5 gal.

PREVIOUS POWER: Twin Detroit Diesel electronically controlled 6V92TA 435 bhp at 2,100 rpm **TRANSMISSION:** Reintjes WVS 234 UP, 2:1 reduction **PROPS:** 4-blade, 28" diameter x 36" pitch

NEW POWER: Cummins QSC8.3 530 bhp at 2,800 rpm **TRANSMISSION:** ZF 2:1 reduction **PROPS:** 4-blade, 27" diameter x 27.75" pitch

Controller returns engines to neutral and idle if the boat rolls past 110 degrees. Programming ensures that the diesels won't stall when shifting between hard ahead and hard astern in dangerous surf.

OTHER IMPROVEMENTS

With more than 100 boats pounding through rough water for longer than a quarter-century, metal fatigue is an issue. Aluminum sections identified as trouble spots are replaced fleetwide, and individual boats are inspected and flagged for additional repairs. Operation was streamlined based on 25 years of experience too. "The basics of the boat were sound, but they've updated little things that make our day-to-day operation easier," Whitlow says. "Something as simple as our tow reel—now it's easier to use and requires less maintenance."

"The LED lighting in the cabin is much brighter. It's safer for people moving around," Fortner adds. "In the engine room, you can see hazards more clearly." New, bright LED floodlights now illuminate all around the boat, versus holding a searchlight on a specific spot. Other changes decrease maintenance time. When high-impact-plastic fender collars crack on older boats, aluminum studs are cut off and new fenders welded in place. Birdon, instead, reengineered detachable brackets. "The fact that we don't have to weld those studs onto the hull is a huge advantage," Fortner says, because it required disconnecting electronic engine controls and isolating battery chargers to preclude damage from electrical current used while arc-welding on aluminum hulls.

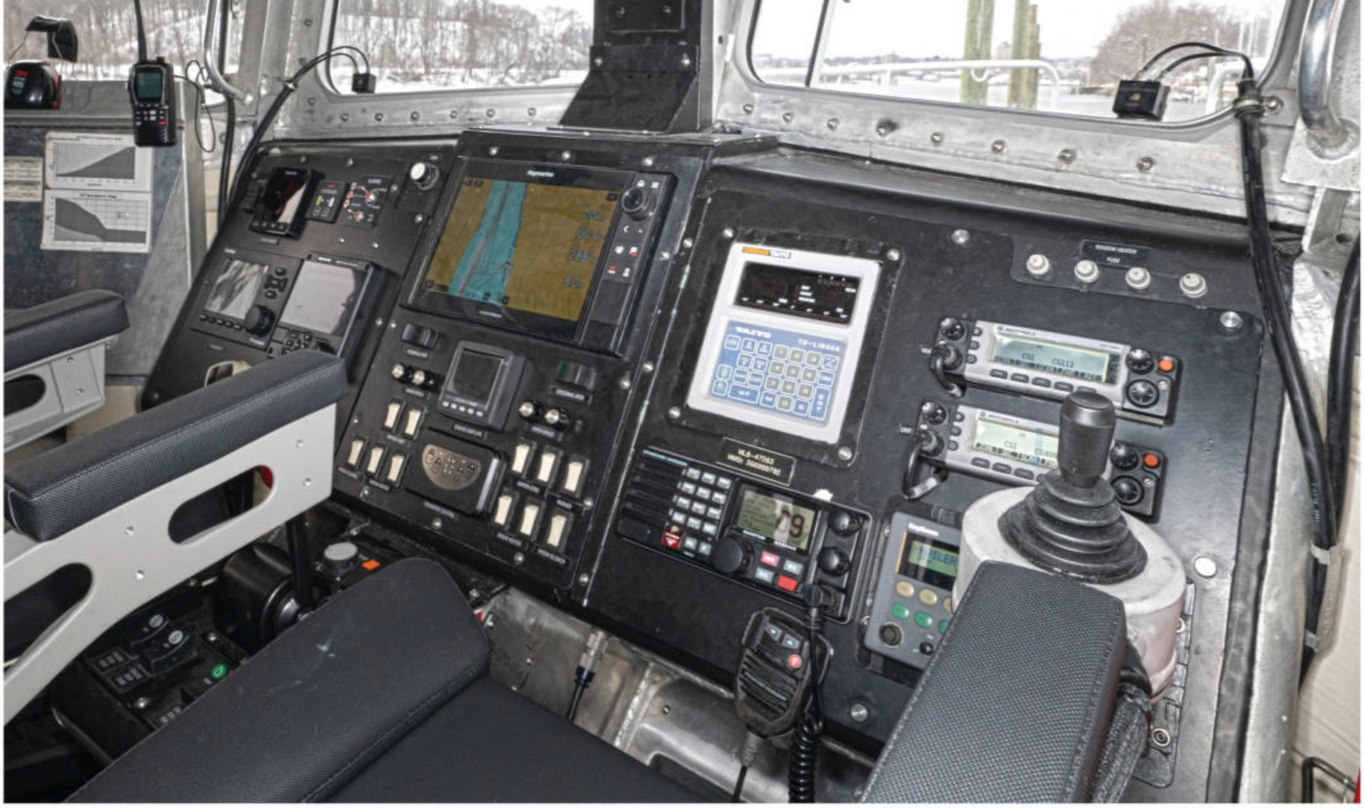
ALL BUSINESS The Survivors' Compartment (main cabin) includes all the gear that Coast Guard 47 MLB crews need for rescue.

SUPPLY SIDE Birdon's warehouse stores 4,000 items, where they're ready for the next boat, including new, taller stainless-steel propeller struts, Aquamet 22 shafts, and self-closing emergency fuel-shutoff valves.

CREW COMFORT

"The human performance people got involved, so we're less susceptible to chronic fatigue," Fortner says, which can be significant while spending long hours in rough seas. The reconfigured open bridge, for example, improves both operation and comfort. Previously, two Stidd chairs and two folding jump seats accommodated the boat's typical crew. Now three Shoxs impact-absorbing seats across the front keep most eyes looking ahead and to the sides, while the port aft Shoxs seat swivels for someone scanning astern or watching a tow. Sound and vibration are also mitigated with new, quieter diesels, along

PHOTOS: CAPT. VINCENT DANIELLO



with sound-dampening insulation and specialized deck systems.

There have been tweaks made during the project too. Initially, the starboard flying bridge control station had the steering jog-lever on the right and throttles on the left, while other helm stations positioned throttles on the right and jog-lever on the left. Those starboard station controls are now switched—a small detail that becomes critical when taking quick action in 20-foot breaking surf.

ELECTRONICS

While most of each boat's radio equipment carries over through the refit, Birdon is installing the Coast Guard's new Scalable Integrated Navigation System from Raymarine as well. The entire fleet, including some 47 MLBs not yet incorporated into Birdon's refit schedule, will upgrade their electronics by 2026 for either primary navigation aboard small boats or redundancy on ships.

On older 47 MLBs, navigation and radar equipment might be noticeably different when crews switch between boats. Now operation, training, troubleshooting and spare parts will all become standard across the entire fleet. Future upgrades, such as adding FLIR cameras, which are not currently installed on 47 MLBs, can network with existing equipment.

Increased integration is particularly helpful. "Now we see AIS contacts right on the radar and plotter screen. It gives a better snapshot of what's around," Whitlow says. AIS alerts are more configurable too, providing "an extra layer of safety."

Raymarine also added encrypted AIS messaging into the entire Coast Guard system. Radar and AIS targets are easily shared from one boat and dropped right onto another boat's chart-plotter screen, or broadcast fleetwide. Search Action Plans or EPIRB coordinates relayed from shore can be uploaded directly onto navigation displays rather than manually entered aboard each boat, and shoreside command can monitor individual vessels in real time. Data sharing between Coast Guard and law-enforcement vessels utilizing Raymarine equipment facilitates interagency cooperation as well.

Why do Coast Guard men and women head offshore in small boats in weather that keeps others tied to the dock? "My pay is the reward I feel for serving the community, and the pride after a rescue, in knowing those people and your crew are safe," Fortner says. "It's just people helping people."

The newly renovated 47 MLB is an excellent tool to that end. "I trust the boat to do what it is supposed to do," he adds. "The lights stay burning, the shafts keep turning, and the boat stays upright to get us home safely."

STATION CONTROL Navigation and communication equipment, including a new Raymarine SIMS display, occupy the pilothouse dash.

CONTROL ISSUES An open bridge helm provides visibility forward and down to the starboard-side rescue well. Across the boat, another station with jog-lever and engine controls overlooks the portside rescue well.

PHOTOS: CAPT. VINCENT DANIELLO

By Jim Hendricks

SIMRAD NSS 4

Multifunction displays continue to advance in processing speed, system integration, enhanced control capabilities, and ease of use. The latest to emerge in this marine-tech revolution is the Simrad NSS 4 series of premium chart-plotter and fish-finder displays for cruising and sport-fishing boats.

Available in 10-, 12- and 16-inch screen sizes, the NSS 4 MFDs feature an all-new Qualcomm 8-core processor, enabling smoother page transitions, faster auto-routing and, ultimately, easier use with lightning-fast transitions. The NSS 4 series also features a trio of hybrid control options—touchscreen, rotary dial and keypad—providing choices in accessing and controlling functions via the optimized user interface. An updated glass-to-edge design delivers a premium look to the helm.

Simrad NSS 4 models offer built-in dual-channel 1 kW chirp sonar, as well as support for Active Imaging HD sonar. With this unique new feature, anglers for the first time can track as many as four sonar sources on a single split-screen display. The new MFDs also feature integrated C-Map, Discover X and Reveal X electronic charting. NSS 4 displays offer plug-and-play networking with Simrad radar systems, Simrad S3100 and S5100 sonar modules, and also network with and control the latest trolling motors, including Rhodan and Simrad's new Recon.

NSS 4 boasts extensive support for third-party technology and devices, including multiple IP cameras, CZone digital switching, RGBW LED lighting, marine audio systems, SiriusXM, and more. In addition, the NSS 4 displays seamlessly integrate with Mercury outboards and other propulsion systems with features such as onscreen cruise control, active trim, and autopilot. What's more, the new displays integrate with other popular engine brands such as Honda and Suzuki, offering features including fuel management and fault diagnostic tools.

The NSS 4 series MFDs starts at $2,599. To learn more, visit simrad-yachting.com.

PHOTOS: (FROM TOP) COURTESY SIMRAD; COURTESY DOMETIC

DOMETIC DG3 GYROSTABLIZER

Dometic has set its sights on the marine gyrostabilizer market with the introduction of its new DG3 featuring roller-screw technology that enables an actively controlled flywheel to eliminate roll on boats ranging from 35 to 41 feet in length. The DG3 has an all-electric procession actuator that replaces conventional hydraulic actuators that require fluid and are prone to leaks. The DG3 solution improves long-term durability, minimizes service, and reduces the total cost of ownership.

This new gyro spins up in just 16 minutes, boasts a slower-spinning flywheel, larger and more-robust bearings, a patent-pending inner race cooling system, and a corrosion-resistant titanium heat exchanger. The DG3 also introduces innovations in energy storage and recapture, enabling the battery system to recharge effectively using the gyro itself.

Dometic has designed the DG3 as an easy drop-in replacement for other comparably sized gyro systems. It features reversible mounting feet to address common challenges encountered by installers. With an MSRP of $43,815, the DG3 is compatible with 12-, 24- and 48-volt house-battery systems. Learn more at dometic.com.

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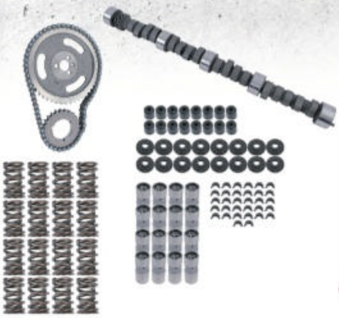

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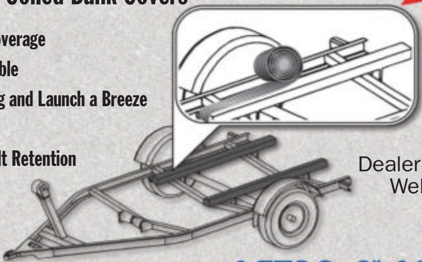

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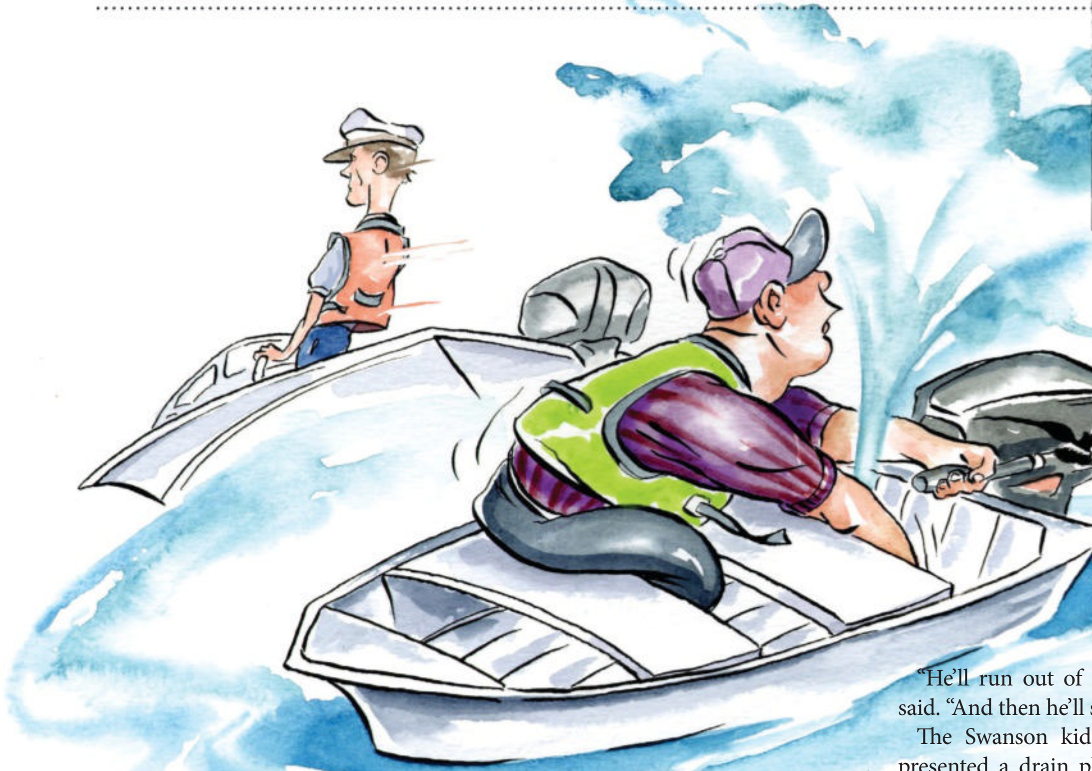

A FIRST TIME FOR EVERYTHING

Every boater is going to make a mistake; it's only a matter of when and where.

There are some mistakes you make only once in life; perhaps the error resulted in physical pain, deep humiliation or significant financial loss. The memory lingers and, one hopes, moves to the forefront of the old cortex just before you are about to repeat the same miscue. For example, it's been 45 years since the evening I poured the last drops of the fourth quart of oil into the engine of my car, only to look down and see an expanding puddle of Mobil 1 at my feet. To this day, when changing the oil in any engine, my subconscious whispers, "Drain plug in?"

A fine spring Saturday in the North Woods found the usual suspects gathered on the lakeshore terrace outside the Lake View Inn. It was the Swanson kid who first spotted my good friend Chuck Larson out on the water.

"Is that Chuck Larson running in circles out there, in that little boat?" the kid asked. And by golly, it was Chuck, in the sweet little 10-foot Lund he'd picked up the previous year. He seemed to be bent over in the aft seat, like he was looking for something on the sole, while he kept one hand on the outboard tiller. With each circle, he zoomed a little closer to the Lake View dock.

"Now he's waving at us," the kid said, "and yelling. But I can't make out what he's saying."

We all looked at each other and finally decided to hoist out of our comfy Adirondack seats and amble down the dock. The apex of Chuck's arc was now only about 40 yards off the end of the pier, and on his next pass, we could make out "I lost…" and on the next pass "...the plug!"

"He'll run out of gas eventually," Dwight Grams said. "And then he'll swamp that little boat."

The Swanson kid ambled down the dock and presented a drain plug. "It was on the bumper of Chuck's truck."

Of course, a 10-foot boat does not have a bilge pump, and so we surmised that Chuck was keeping the boat on plane to keep the lake out of the Lund. The solution was to back Chuck's truck and trailer down the ramp so that he could motor right onto the bunks and winch it out before the little outboard went under.

> The apex of Chuck's arc was now only about 40 yards off the end of the pier, and on his next pass, we could make out "I lost..." and on the next pass "...the plug!"

Chuck and I are close. So close that I know he always tosses his keys behind the right rear tire of his truck. Water was still flowing from the bung as I pulled up the ramp with Chuck and the Lund secure on the trailer.

"Dammit, I did it again!" Chuck said as he tossed me a soggy seat cushion. "Same thing happened last year, only nobody was around, so I had to beach the boat. Glad everyone was here!"

There really is a first time for everything. And for Chuck, a second—and likely a third time too.

ILLUSTRATION: TIM BOWER; PHOTO: MABEL PLUEDDEMAN

BOATING (ISSN 0006-5374, USPS 504-810), May 2025, Vol. 98, No. 4. *Boating* is published 8 times per year (January/February, March, April, May, June/July, August/September, October and November/December) by Firecrown Media Inc., 405 Cherry Street, Chattanooga, TN 37402. Copyright ©2025 by Firecrown Media Inc. All rights reserved. Reprinting in whole or part is forbidden except by permission of Firecrown Media Inc. POSTMASTER: Send address changes to BOATING, P.O. Box 217, Lincolnshire, IL 60069, or to boating@omeda.com. Periodicals postage paid at Chattanooga, TN, and additional mailing offices. Printed in the USA.

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